freedom9™

freeView IP 800

Eight Port KVM over IP SWITCH

USER'S MANUAL

Rev 1.2
P/N: KVM-08IA

Copyright and Trademark Information

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1 Quick Installation Guide

1.1 Introduction

The freeView IP 800 redirects local keyboard, mouse and video data to a remote administration console. All data is transmitted via IP. The freeView IP 800 can also be used in a multi administrator and multi server environment. Also, the freeView IP 800 is a KVM switch which can be used with a local console.

1.2 Hardware Installation

In order to connect to the freeView IP 800, perform the following steps:
1. Connect the power supply to the freeView IP 800.
2. Connect the monitor to the freeView IP 800.
3. Connect the keyboard to the freeView IP 800.
4. Connect the mouse to the freeView IP 800.
5. Plug the HDDB-15 pin connector of a 3-in-one KVM cable into Port 1 on the rear of the freeView IP 800 unit. Then connect the HDDB-15 pin male type for PC video, the purple Mini-Din 6 pin female type for the keyboard and the green Mini-Din 6 pin female type for a mouse into the respective ports on the computer.
6. Repeat step 5 for each PC being connected to the freeView IP 800.
7. Connect the Ethernet cable and/or analog modem, depending on how you want to access freeView IP 800.

1.3 Video Modes

The freeView IP 800 supports many common video modes.   Please refer to Appendix C for a list of all supported video modes.

1.4 Initial IP Configuration

By default, the freeView IP 800 uses the network parameters shown in Table 1-1.

Parameter	Value
IP auto configuration	DHCP
IP-Address	None
Net-mask	255.255.255.0
Default-Gateway	None

Table 1-1: Default Network Settings

If these network parameters do not match the network configuration, the device's network settings can be configured using the program KVMSetup.exe located on the installation CD after

the unit has been connected to the network and powered on.

To change the network settings of the device:

1. Open Windows Explorer and browse to the CD drive.
2. Double-click the file KVMSetup.exe.
3. A screen similar to Figure 1-1 will be displayed.
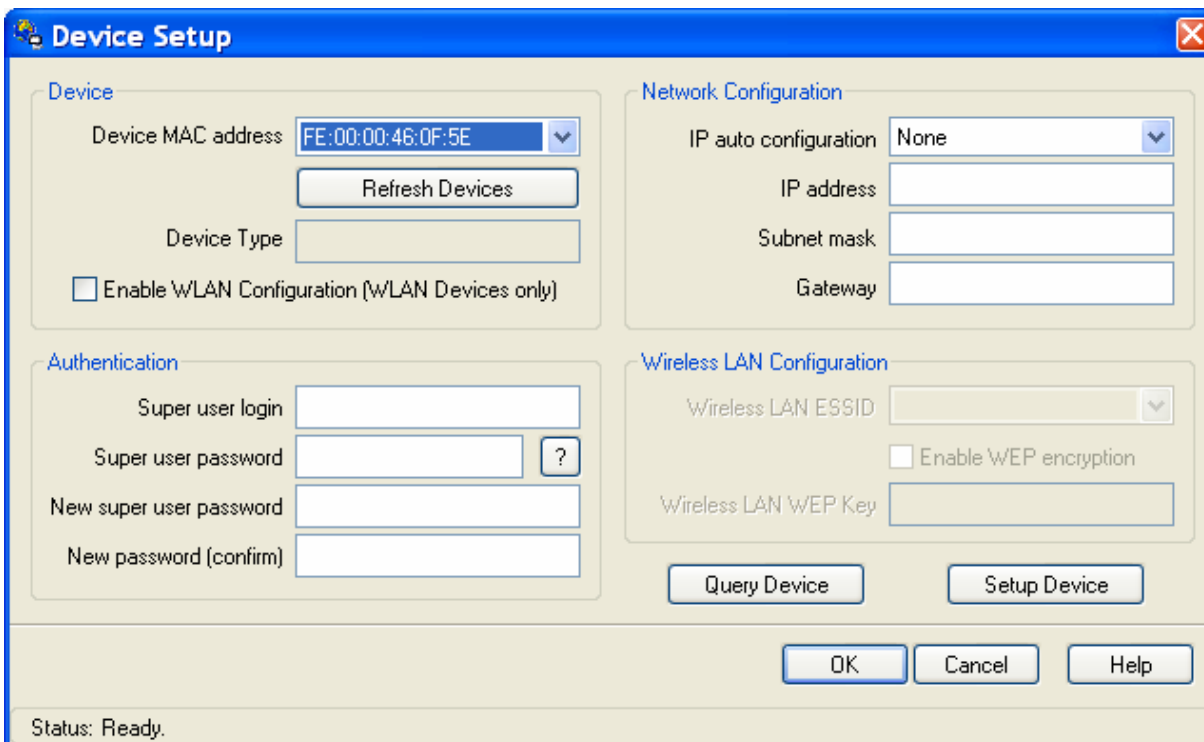
Figure 1-1: KVM Setup Program

4. Select the unit's MAC address from the drop-down list under "Device MAC address".
5. Enter the desired IP address for the device under "Network Configuration".
6. Enter the user name and password under "Authentication". The default user name is "super" and the default password is "pass".
7. Click "Setup Device".

1.5   Web Interface

The freeView IP 800 may be accessed using a standard JAVA enabled web browser. You may use the HTTP protocol or a secure encrypted connection via HTTPS. Enter the configured IP address of the IP-KVM switch into your web browser.

The default user name and password to log into the device are shown below.

User name	super
Password	pass

It is recommended that the default password be changed immediately to prevent unauthorized access to the device.

1.6   Remote Console

The Remote Console is the redirected screen, keyboard and mouse of the remote host system to which the freeView IP 800 is connected. The web browser which is used to access the unit has to have Java Runtime Environment version 1.1 or higher installed. However, it is strongly recommended that the Sun JVM 1.4 is installed. The Remote Console will behave exactly the same way as if you were sitting directly in front of the screen of your remote system. That means that both the keyboard and mouse can be used in the usual way. Open the console by selecting the preview picture on the main site of the HTML front end. Figure 1-2 shows the top of the Remote Console.

Figure 1-2: Remote Console

Once connected, the following can be performed to improve the user experience:

Auto Adjust button

If the video displayed is distorted, click this button and the device will automatically adjust its display to improve the quality.

Sync Mouse button

Choose this option in order to synchronize the local with the remote mouse cursor. This is especially necessary when using accelerated mouse settings on the host system. In general there is no need to change mouse settings on the host.

Video Settings in Options Menu

This opens a new window with elements to control the PS/2 IP-KVM switch Video Settings. You can change some values, for instance the brightness and contrast of the picture displayed, which may improve the video quality. It is also possible to revert to the default settings for all video modes or only the current one.

Note: After starting up, if the local mouse pointer is not synchronized with the remote mouse pointer, press the Auto Adjust Button once.

2 Introduction

Thank you for purchasing the freeView IP 800. The freeView IP 800 saves money, time, space, equipment and power. The freeView IP 800 defines a new class of remote KVM access devices; it combines digital remote KVM access via IP networks with comprehensive and integrated system management.

The device provides convenient, remote KVM access and control via LAN or Internet. It captures, digitizes, and compresses the video signal and transmits it and keyboard and mouse signals to and from a remote computer. The freeView IP 800 provides a non-intrusive solution for remote access and control. Remote access and control software runs on the embedded processor only and not on the mission-critical servers, so that there is no impact on server or network performance.

Furthermore, the freeView IP 800 offers additional remote power management when used with an optional IP Power device.

The device supports consoles consisting of a PS/2 keyboard and mouse and HDDB 15 video output and will automatically detect the current video mode of the console. The freeView IP 800 will accept video streams up to 110 MHz. This results in a screen resolution of 1280x1024 pixels with a frame rate of 60 Hz.

2.1 When The Server Is Operational

The freeView IP 800 gives you full control over the remote server. The Management Console allows you to access the remote server's graphics, keyboard and mouse and the ability to send special commands to the server. You can also perform periodic maintenance on the server. Using the Remote Console, you can do the following:
A. Reboot the system.
B. Monitor the boot process.
C. Boot to a different operating system on dual-boot machines.
D. Boot up in Windows Safe Mode.
E. Boot the system from a separate partition to load diagnostic environment.
F. Run special diagnostic programs.

2.2 When The Server Is Non-Operational

Using the freeView IP 800, the system administrator can discover problems with the server; though fixing hardware problems is not possible through a remote management device. Nevertheless, the device gives the administrator valuable information about the type of hardware failure. Serious hardware failures can be categorized into five different categories, with the percentage chance of failure listed below:
A. Hard disk failure 50%

B. Power cable detached, power supply failure 28%

C. CPU, Controller, main board failure 10%

D. CPU fan failure 8%

E. RAM failure 4%

Using the freeView IP 800, administrators can determine which kind of hardware failure has occurred (See table 2-1).

Type of Failure	Detected By
Hard disk failure	Console screen, CMOS set-up information
Power cable detached, power supply failure	Server remains in power off state after power on command has been given.
CPU Controller, main board failure.	Power supply is on, but there is no video output.
CPU fan failure	Server specific management software
RAM failure	Boot-sequence on boot console

Table 2-1: Host System Failures and Detection Methods

2.3　Features

- Remote mass storage control 8 port KVM over IP switch is has a 19" rack mount size design

- Supports DOS, Win3.X, Win95/98/98SE/2000/ME/XP, WinNT, Netware, Unix, Linux

- Supports iMAC, Power MAC and Sun Microsystems with USB port (Requires the use of a USB-PS/2 adapter)

- Hot Plug - Add PCs or Remove Connected PCs for Maintenance without Powering down the KVM switch or PCs.

- High Video Quality – Resolution Up To 1920X1440 (local side), 1280 X1024 (remote side)

- No Software Required - easy PC selection via On Screen Display Menu (OSD), Push Buttons, Hot Keys

- At local console side - Support eight characters password protection and search PC server name

- At Remove console side – Use SSL protocol for any encrypted network traffic between itself and a connected client.

- Keyboard status restored when switching PCs

- LED Display for easy status monitoring

- Buzzer sound for switching port confirmation

- Built-in daisy chain port

- Daisy chain bank is automatically detected, no need for a DIP switch

- Manage servers around the world

- KVM (keyboard, video, mouse) access over IP and analog telephone line (external modem required)

- BIOS level access

- No impact on server or network performance

- Automatically senses video resolution for best possible screen capture

- High-performance mouse tracking and synchronization

- SSL encryption

2.4   Package Contents

freeView IP 800	1 PC
Quick Install Guide	1 PC
Installation software and User Manual on CD-ROM	1 PC
AC to DC Power Adapter	1 PC
Rack mount Kit	1 SET
Null modem cable	1 PC
USB A to B 6 feet cable	1 PC
3-in-1 3 feet KVM cable	1 PC

2.5 Technical Specifications

Model No.	freeView IP 800 switch
PC Port	8
Console Port	1
PC Port Connector (All Female Types)	VGA HDDB 15-pin(shared with PS/2 keyboard and Mouse)
Console Port Connector (All Female Types)	Local Console: PS/2 Keyboard Mini Din 6 pin PS/2 Mouse Mini Din 6 pin VGA HDDB 15pin Remote Console: RJ-45 8P8C
Daisy Chain Port Connector (All Female Types)	PS/2 Keyboard mini Din 6 pin PS/2 Mouse Mini Din 6 pin VGA HDDB 15pin
Serial Port (DB9 pin Male)	1
LAN port (RJ-45 8P8C)	10BASE-T Ethernet uses Category 3/4/5/5E/6 UTP 100BASE-T Ethernet uses Category 5/5E/6 UTP
Reset button	1
PC selection	On Screen Display Menu, Hot Key, Push Button
PC Port LED	8
Bank 7 segment LED	1
On Screen Display Control	Yes
Scan Intervals	5~99 Sec.
Keyboard Emulation	PS/2
Mouse Emulation	PS/2
VGA Resolution	Local Console: 1920X1440 Remote Console: 1280 X1024
Daisy Chain MAX Level	8 levels
MAX PC Connection	120
Housing	Metal
Power Adapter	DC 5V, 2.5A
Operation Temperature	0 ~ 50°C
Storage Temperature	-20 ~ 60°C
Humidity	0~80%, Non-Condensing
Size	19" Rack Mount / 1RU
Weight (kg)	2.0kg
Dimensions (cm)	41(L) X 16.4(W) X 4.6(H)

2.6 System Requirements

Model No.	freeView IP 800 switch
Local console side	One VGA Monitor One Keyboard One Mouse
Network side	10/100Mbps Ethernet or Modem
Remote Console side	One computer
Computer side	8 PCs with 8 3-in-one cables (One HDDB 15-pin male to one HDDB 15-pin and two Mini Din 6-pin PS/2 cables)

2.7 Cable Diagrams

PS/2 Cable:
Mini Din 6 pin Male to Male

VGA Cable:
HDB15 pin Male to Male

AT to PS/2 keyboard adapter: (Optional)
Din 5 pin Male to Mini Din 6 pin Female

PS/2 to DB9 adapter (Optional)
Mini Din 6 pin Female to DB 9 pin Female

CAT5/5E/6 Straight Through UTP/STP Cable:
8P8C

2.8 Product Details

8 port Rack Mount PS/2 IP-KVM switch:

3 Hardware Installation

3.1 Operation Overview

Figure 3-1 shows an example of how to connect the freeView IP 800 KVM switch to its host, to peripheral devices, to the power source and to the local area network.
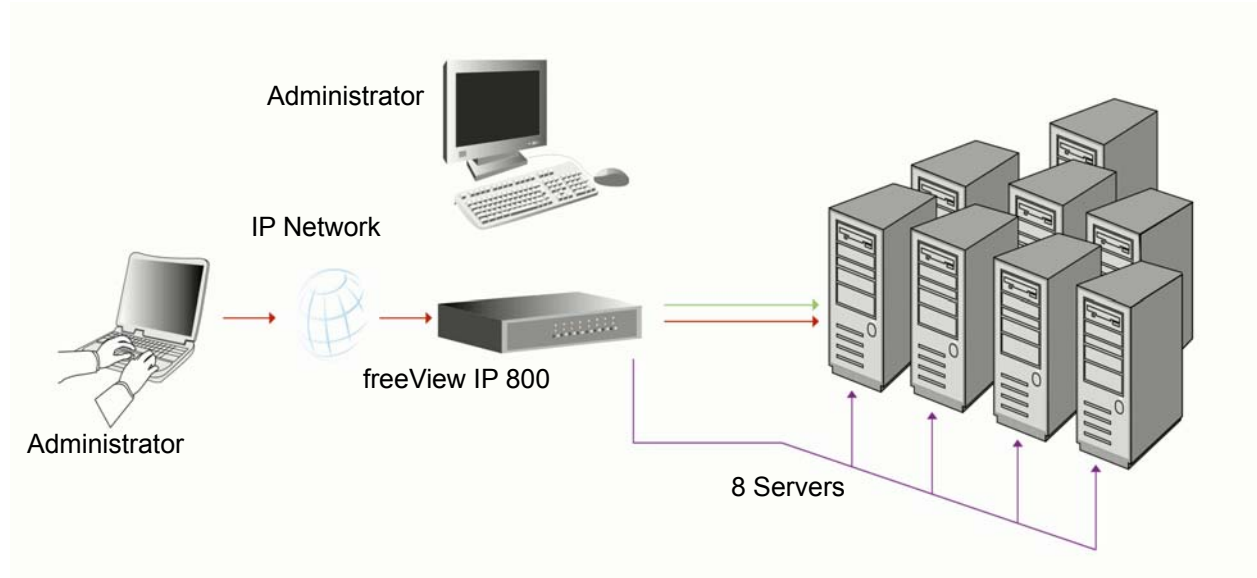
Figure 3-1: freeView IP 800 Usage Scenario

The unit redirects local keyboard, mouse, and video data to a remote administration console. All data is transmitted via IP.

The unit can also be used in a multi administrator and multi server environment.

3.2 Connecting The freeView IP 800 To The Host System

Before installation, make sure all peripherals and computers have been turned off. This example of installation is based on the freeView IP 800. In order to connect the unit to the host system, please perform the following steps:

Step 1

Attach the power supply to the KVM unit and plug the other end into an electrical receptacle.

Step 2

Find a convenient place to put the unit. Its 19" rack mount form factor makes it ideal for mounting on a 19" rack. When mounting to a rack, attach the included brackets to the sides of the unit. Take note of the length of your cables so that your computers, KVM Switch, keyboard, mouse and monitor are distanced properly.

Step 3

Connect the monitor to the KVM Switch. Using the attached cable, or the one included with your monitor, connect it to the HDDB15-pin female port on the back of the KVM unit labeled with the monitor symbol at the CONSOLE connector.

Step 4

Connect the keyboard to the KVM Switch. If you have an AT type keyboard, you will need an AT to PS/2 adapter.

Step 5

Connect the mouse to the KVM Switch.

Step 6

Each PC port connector is HDDB15-pin type. Locate your input cable. It will have an HDDB15-pin male connector at one end. Plug it into any labeled computer port on the rear of KVM switch unit. The other end of input cable will have three connectors: a HDDB15-pin male type for PC video, a Mini Din 6 pin female type for keyboard and a Mini Din 6 pin female type for mouse, plug these three connectors into the respective ports of the computer. Repeat the same

procedure for each computer.
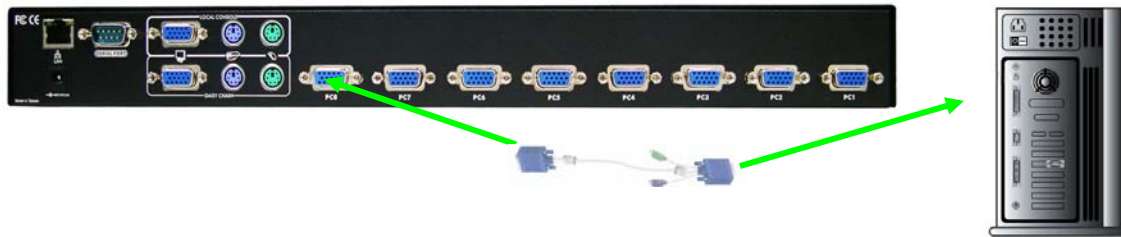
Step 7

Double-check all of the connections. You can check the color of keyboard and mouse connectors to make sure the keyboard and mouse cables go to the correct ports.

Step 8

Repeat steps 6 and 7 for the remainder of the computers.

Step 9

Connect the Ethernet and/or modem, depending how you want to access the unit.

Internet

Modem
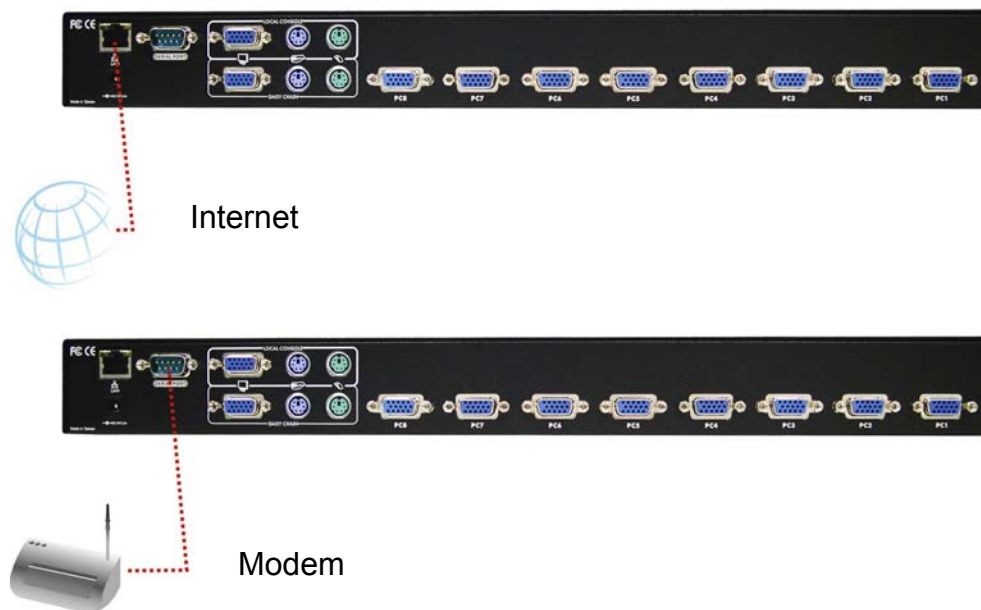
The rear side of the unit provides an RJ-45 connector for Ethernet. The connector is used for either a 100 Mbps 100BASE-TX connection or for a 10 Mbps 10BASE-T connection. The adapter can sense the connection speed and will adjust to the appropriate operation mode automatically.

Using a 10 Mbps Connection

For 10BASE-T Ethernet networks, the Ethernet adapter uses Category 3, 4, 5 or 6 UTP cable. To establish a 10 Mbps connection, the cable must be connected to a 10BASE-T hub.

- Make sure that the cable is wired appropriately for a standard 10BASE-T adapter.

- Align the RJ-45 plug with the notch on the adapter's connector and insert it into the adapter's connector.

Using a 100 Mbps Connection

For 100BASE-TX Fast Ethernet networks, the freeView IP 800 supports Category 5 or higher UTP cabling. To establish a 100 Mbps connection, the cable must be connected to a 100BASE-TX hub or switch.

- Make sure that the cable is wired appropriately for a standard 100BASE-TX adapter.

- Align the RJ-45 plug with the notch on the adapter's connector and insert it into the adapter's connector.

4 Configuration

4.1 Initial Configuration

The freeView IP 800 is shipped with the network configuration listed in Table 4-1.

Parameter	Value
IP auto configuration	DHCP
IP-Address	None
Net-mask	255.255.255.0
Default-Gateway	None

Table 4-1: Initial Network Configuration

Note: If the DHCP connection fails on boot up, the freeView IP 800 will not have an IP address.

If this initial configuration does not meet your requirements, the following describes the initial IP configuration that is necessary to access the PS/2 IP-KVM switch for the first time.

4.2 Initial Configuration Via DHCP Server

By default, the freeView IP 800will attempt to contact a DHCP server in the subnet to which it is physically connected. If a DHCP server is found, it may provide a valid IP address, gateway address and subnet mask. Before you connect the device to your local subnet, be sure to complete the corresponding configuration of your DHCP server. It is recommended to configure a fixed IP assignment to the MAC address of the unit. You can find the MAC address label on the bottom of the unit.

If this initial configuration does not meet your local requirements, use the setup tool to adjust the values to your needs. The setup tool can be found on the CD ROM delivered with this package. You can follow the procedure described below.

4.3 freeView IP 800 Setup Program

Connect the freeView IP 800 to a computer via local network or USB. Start the setup tool KVMSetup.exe located on the Installation Disk on the computer. The program screen is shown in Figure 4-1.
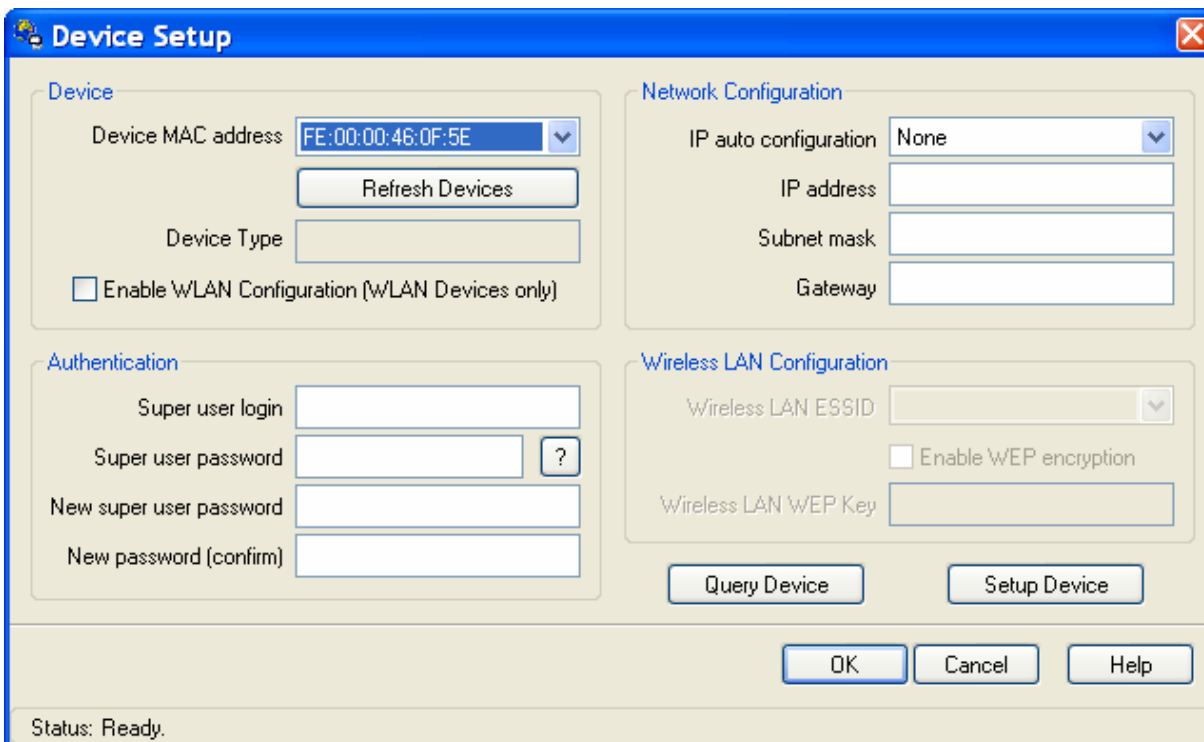
Figure 4-1: freeView IP 800 Setup Tool

On the upper left corner, the MAC address(es) of all freeView IP 800 switches are displayed. To rescan for devices, click "Refresh Devices".

1. Select the MAC address of the unit to be configured from the dropdown list.
2. Click "Query Device" to populate the current configuration of the device.
3. Enter the network configuration settings in the Network Configuration screen.
4. Enter the username and password of the device in the Authentication screen. The default username is "super" and the default password is "pass".
5. If desired, enter a new password for the super user. **Note:** Write down the new password and keep it in a safe, secure location for later reference.
6. Click "Setup Device" to save the new settings.
7. Click "OK" to close the window.

4.4   Initial Configuration Via Serial Console

Connect a null modem cable from a serial port on a computer to the RS-232 port on the console side of the freeView IP 800. Open up a terminal access program (e.g. HyperTerminal) to access the device. The unit uses the terminal parameters shown in Table 4-2.

Parameter	Value
Bits/second	115200
Data bits	8

Parity	No
Stop bits	1
Flow Control	None

Table 4-2: Serial Line Settings

1. Power off the unit.
2. Power on the unit and immediately press the <Esc> key.
3. After the boot up sequence is completed, a "=>" prompt will appear.
4. Type "config" and press the <Enter> key and wait for the configuration questions to appear.
5. For each question, type in the desired settings, or press <Enter> to accept the default value shown in square parenthesis [ ].
6. The parameters that can be set are as follows:

IP auto configuration (none/dhcp/bootp) [dhcp]:

With this option, the user can specify whether the freeView IP 800 gets its network settings from a DHCP or BOOTP server. For DHCP, enter "dhcp", and for BOOTP enter "bootp". If neither option is selected, the IP auto configuration is disabled and the network settings will need to be configured manually.

IP [192.168.1.22]:

The IP address of the unit. This option is only applied if IP auto configuration is set to none.

Net mask [255.255.255.0]:

The subnet mask of the unit. This option is only applied if IP auto configuration is set to none.

Gateway (0.0.0.0 for none) [0.0.0.0]:

The IP address of the default gateway of the device. If a default gateway is not available, enter 0.0.0.0. This option is only applied if IP auto configuration is set to none.

4.5   Keyboard, Mouse And Video Configuration

The freeView IP 800 can be connected to the host machine's peripheral ports via PS/2 or USB. The correct operation of the remote mouse depends on several settings which will be discussed in the following subsections.

4.5.1   freeView IP 800 Keyboard Settings

The freeView IP 800's settings for the host keyboard type have to be correct in order for the remote keyboard to work properly. See Section 6.4.2 for details.

4.5.2 Remote Mouse Settings

A common problem with KVM devices is the synchronization between the local and remote mouse cursors. The freeView IP 800 addresses this problem with an intelligent synchronization algorithm. There are two mouse modes available on the freeView IP 800:

1. **Auto mouse speed**

The automatic mouse mode tries to detect the speed and acceleration settings of the host system automatically. See the section below for a more detailed explanation.

2. **Fixed mouse speed**

This mode translates the mouse movements from the Remote Console in a way that one pixel move will lead to a fixed number of pixel moves on the remote system. The number of pixels can be adjusted using the scaling feature. It should be noted that this will only work when mouse acceleration is turned off on the remote system.

4.5.3 Auto Mouse Speed And Mouse Synchronization

The automatic mouse mode performs the speed detection during mouse synchronization. If the local mouse loses synchronization with the remote mouse, there are two methods for re-synchronizing local and remote mouse:

1. **Fast Sync**

Fast synchronization is used to correct a temporary, but fixed skew. Choose this option using the Remote Console options menu or press the mouse synchronization hotkey sequence if it has been defined.

2. **Intelligent Sync**

If fast synchronization does not work or the mouse settings have been changed on the host system, use intelligent resynchronization. This method takes more time than the fast synchronization and can be accessed in the Remote Console option menu. Intelligent synchronization requires the picture be adjusted correctly. Use the auto adjustment function or the manual correction in the Video Settings panel to configure the picture. The Sync Mouse button at the top of the Remote Console behaves differently, depending on the current state of mouse synchronization. Pressing this button will perform a fast sync, except when the KVM port or the video mode have been changed, in which case an intelligent sync will be performed.

Note: When using the console for the first time, press the Auto Adjust Button if the local mouse pointer is not synchronized with the remote mouse pointer.

4.5.4   Host System Mouse Settings

The host's operating system knows various settings from the mouse driver.

Note: The following limitations do not apply if the Mouse Type is set to USB and "MS Windows 2000 and newer".

While the freeView IP 800 works with accelerated mice and is able to synchronize the local with the remote mouse pointer, there are limitations which may prevent this synchronization from working properly:

Special Mouse Driver

There are mouse drivers which influence the synchronization process and lead to desynchronized mouse pointers. If this occurs, disable the vendor-specific mouse driver on the host system.

Windows XP Mouse Settings

Windows XP has a setting called "improve mouse acceleration" which has to be deactivated.

Active Desktop

If the Active Desktop feature of Microsoft Windows is enabled, do not use a plain background, use a wallpaper instead. Alternatively, Active Desktop can be disabled altogether.

Move the mouse pointer to the upper left corner of the applet screen and move it back and forth slightly to resynchronize the mouse. If resynchronizing fails, disable mouse acceleration and repeat the procedure.

4.5.5   Single and Double Mouse Modes

The information above applies to the Double Mouse Mode, where both the remote and local mouse pointers are visible and need to be synchronized. The freeView IP 800 also supports a Single Mouse Mode, where only the remote mouse pointer is visible. Enable this mode in the open Remote Console and click in the window area to activate it. The local mouse pointer will be hidden and the remote mouse pointer can be controlled directly. To leave this mode, it is necessary to define a mouse hotkey in the Remote Console Settings Panel. Press this key to free the captured local mouse pointer.

4.5.6   Recommended Mouse Settings

The following are suggestions for mouse modes for various operating systems:

MS Windows 2000/2003 (Professional and Server), XP

It is recommended to use the USB mouse option. Choose USB without Mouse Sync. For a PS/2 mouse choose Auto Mouse Speed. For XP disable the "enhance pointer precision" option in the Control Panel.

SUN Solaris

Adjust the mouse settings either via xset m 1 or use the CDE Control Panel to set the mouse to 1:1, no acceleration. As an alternative, use Single Mouse Mode.

MAC OS X

It is recommended that the Single Mouse Mode be used.

4.5.7   Video Modes

The freeView IP 800 supports most common video modes. When running X11 on the host system, do not use any custom mode lines with special video modes, otherwise, the device may not be able to detect the video mode. It is recommended that a standard VESA video mode is used instead.

5 Usage

5.1 Prerequisites

The freeView IP 800 features an embedded operating system and applications offering a variety of standardized interfaces. This chapter will describe both these interfaces, and how to use them in detail. The interfaces are accessed using the TCP/IP protocol, thus they can be accessed though the Ethernet interface.

5.2 HTTP/HTTPS

Full access is provided by the embedded web server. The freeView IP 800 can be managed using a standard web browser. The web interface can be accessed using the insecure HTTP protocol, or the encrypted HTTPS protocol. Whenever possible, use HTTPS for increased security.

5.3 Telnet

A standard Telnet client can be used to access an arbitrary device connected to the freeView IP 800's serial port via a terminal mode.

The primary interface of the freeView IP 800 is the HTTP interface. This is covered extensively in this chapter. Other interfaces are addressed in subtopics.

In order to use the Remote Console window of the managed host system, the browser has to support Java Runtime Environment (JRE) version 1.1 or higher. If the browser does not have Java support (such as on a PDA), the web interface and be accessed and configure, but the remote console will be unavailable.

Important: It is recommended that the latest version of Sun's JVM is installed.

For an insecure (HTTP) connection to the device, the following browsers are recommended:

- Microsoft Internet Explorer version 6.0 or higher on Windows 98, Windows ME, Windows 2000 and Windows XP

- Netscape Navigator 7.0 or Mozilla 1.6 on Windows 98, Windows ME, Windows 2000, Windows XP, Linux and other UNIX-like Operating Systems

In order to access the remote host system using a securely encrypted connection, a browser that supports the HTTPS protocol is required. Strong security is only assured by using a key length of 128-bit. Some older browsers do not support 128-bit encryption.

Using the Internet Explorer, the current key length supported can be found under "Help", "About Internet Explorer". The dialog box contains a link that leads to information on how to upgrade the

browser to a state of the art encryption scheme. Figure 5-1 shows the dialog box presented by the Internet Explorer 6.0.

Figure 5-1: Encryption Key Length in Internet Explorer

Newer web browsers support strong encryption by default.

5.4 Using the freeView IP 800 as a KVM Switch

The power on state of the freeView IP 800:

When you power on KVM switch, it will ask you for the password, **the default password value is eight zeros – "00000000"**. Key in eight zeros and enter the same value at retype field.

Note: Until you are familiar with the operation of the OSD, don't change the password – i.e. keep default eight zeros (00000000) value. Otherwise, if you have changed the password and forget the password, you will need to send it back to your distributor to reset the password.

- **The Push Buttons**

freeView IP 800 IP-KVM Switch

Buttons   (1) ~ (8) :

Press the button that corresponds to the server you wish to activate.

- **PC Port LED Indication:**

There are two LED indicators for each port, a Green LED and an Orange LED located above each PC port selection button.

When you select a PC port and the PC is shut down or the PC port is disconnected from the PC, the selected port LED will flash Green. When you select a PC port and the PC is powered on and connected, the selected port LED will be solid Green. For each port that has a PC that is connected and powered on but is not currently the selected port, the LED will be solid Orange.

- **7-Segment BANK LED Indication** 🔢

When you would like to view the next bank KVM switch, please press the "BANK" push button cyclically until you reach the destination bank. The bank LED will be changed from bank 1 to the maximum daisy chain level and then press cycle back to bank 1.

→ Bank 1 → Bank 2 → Bank 3 → MAX. BANK →

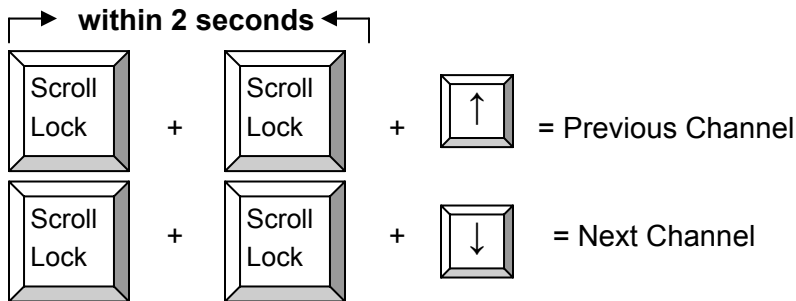- **Reset Button (("** Bank **Bank " button) and (PC 8 "** 8 **" button)):**

Press both the "Bank" button and any one of the "PC1~PC8" buttons of the master bank simultaneously to reset the KVM switch. This reset action will not only return the KVM switch back to its initial state, verify the password and also rescan all of the slave banks which connected to the master KVM Switch.

If you add a new unit as a slave bank, use the reset button of master unit to automatically assign a new ID to it. You can view this new slave bank by going through the OSD menu. The PC ports of the unit are not reset by using the reset command.

- **Keyboard Hot Key Commands:**

You can control the KVM switch by switching ports using simple key sequences. To send commands to the KVM switch, **the <Scroll Lock> (<ScrLk>) key must be pressed twice within 2 seconds.** You will hear a beep for confirmation and the keyboard is change to hot key mode. If you do not press a key in hot key mode within 2 seconds (i.e. pressing a key after pressing the <Scroll Lock> key twice), the keyboard will go back to the Operation System (OS) control state.

Below are the different hot key commands for the local KVM:

→ **within 2 seconds** ←

| Scroll Lock | + | Scroll Lock | + | ↑ | = Previous Channel |

| Scroll Lock | + | Scroll Lock | + | ↓ | = Next Channel |

Note: Hold down the direction key to quickly cycle through the ports.

freedom 9

| Scroll Lock | + | Scroll Lock | + | Page Up | = Previous Bank |

| Scroll Lock | + | Scroll Lock | + | Page Down | = Next Bank |

To select PC port:

| Scroll Lock | + | Scroll Lock | + | Bank No 1~8 | + | Port No.
01~08 (8 port)
01~16 (16 port)
01~32 (32 port) | = Selected bank and PC |

| Scroll Lock | + | Scroll Lock | + | B | = Beeper on local KVM Switch |
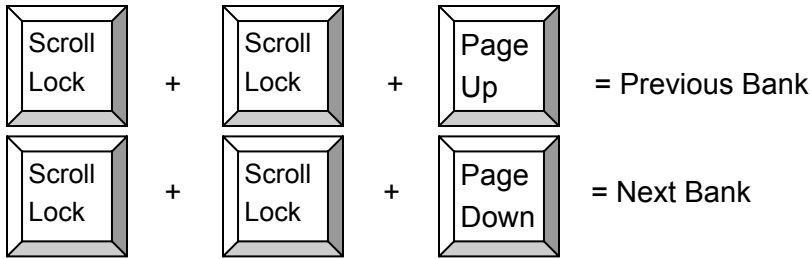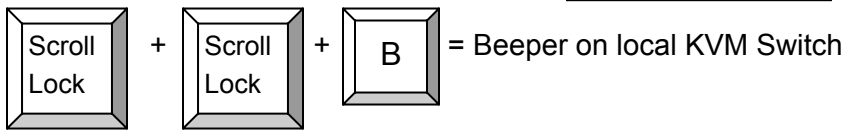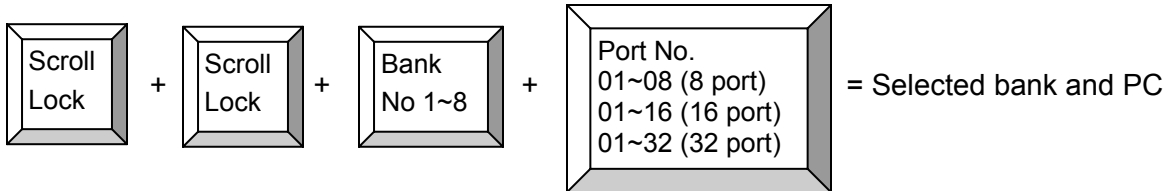
Note: The default Beeper function is ON and beeper control is only available for Scan Mode

| Scroll Lock | + | Scroll Lock | + | S | = Auto Scan |
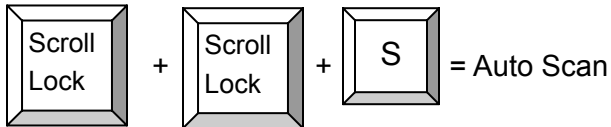
Note: To exit Auto Scan Mode, press any key or the <Spacebar>.

| Scroll Lock | + | Scroll Lock | + | R | = OSD setting back to factory default value. |

(**Note:** This does not affect the password)

ROM REFLASH

| Scroll Lock | + | Scroll Lock | + | F | = Search the same PC name |

FIND:

| Scroll Lock | + | Scroll Lock | + | SPACE BAR | = On Screen Display Menu |
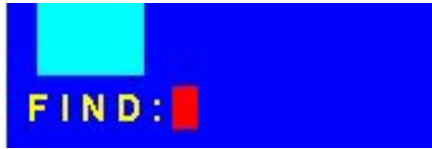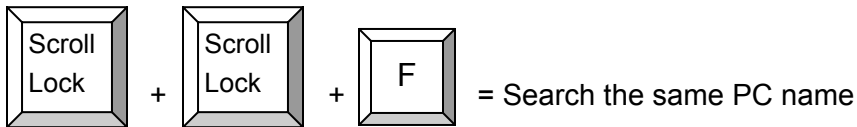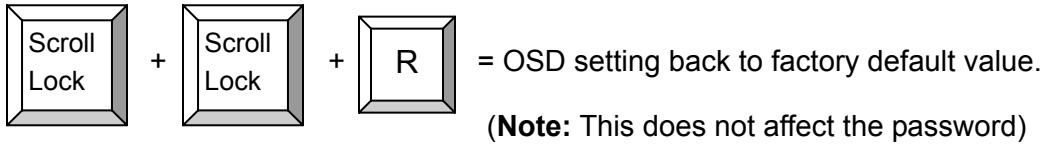
5.5   Daisy Chain Connection Diagram

1. Connect one end of the included 3-in-one KVM cable to the Daisy Chain port on the back of the master unit.
2. Connect the other end of the KVM cable to the Console port on the slave unit.
3. Repeat steps 1 and 2 to connect up to 8 units together in one stack.
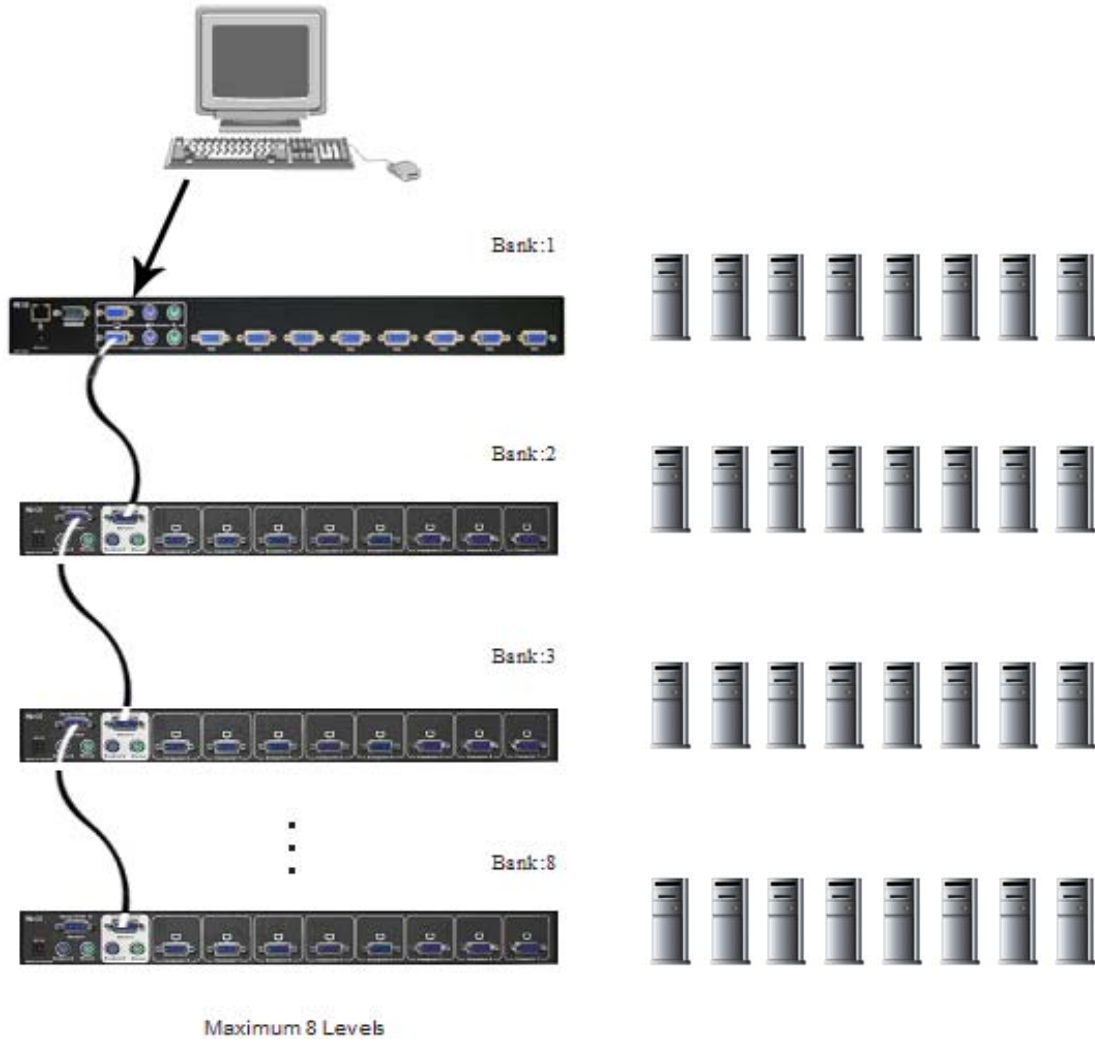
Table 5-1: Daisy Chain Connection

5.6 Hot Plug

The freeView IP 800 supports a "Hot Plug" function for easy addition or removal of PCs. The user can arrange or maintain PCs as follows:

1. A PC can be disconnected and reconnected to the same or different port of the KVM unit without having to power it off as long as it is not the Daisy-chain port or pass through port.

2. You may unplug the mouse or the keyboard from the console port and plug it back in at any time.

Note: Some operating system, e.g. Unix, are unable to support the "Hot Plug" function. If you apply "Hot Plug" to this kind of operating system, it will cause unpredictable behavior or shut down the PC. Before attempting to use "Hot Plug", please make sure your OS and mouse driver support the "Hot Plug" function.

5.7 On Screen Display Operation

The On Screen Display (OSD) menu can be opened by pressing the hot key combination (<Scroll Lock> + <Scroll Lock> + <Spacebar>). The following window will be displayed on your monitor.
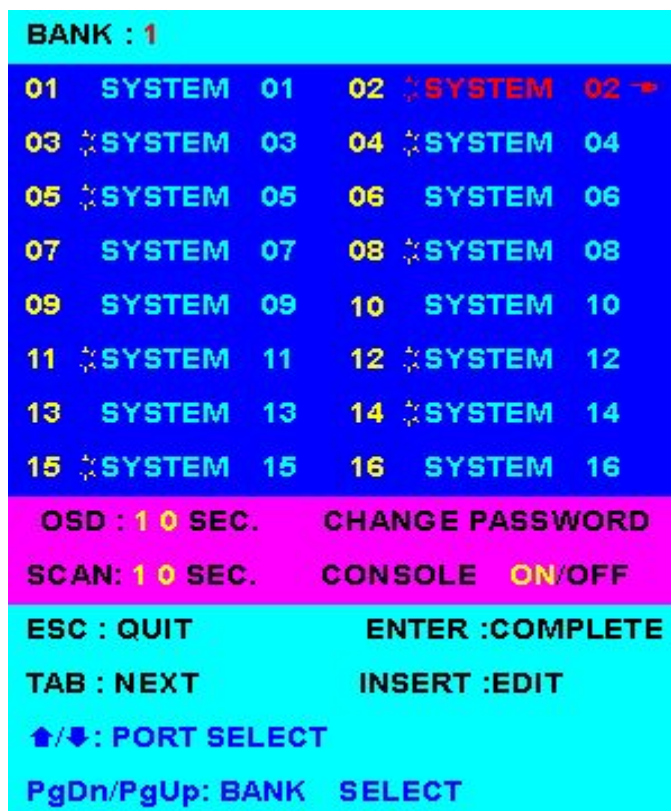
- The first section displays the active bank number.

- The second section displays the list of systems. A sun symbol ☼ indicates that a computer is connected to that port and powered on.

- You will find the system number list from 01 to 08 (freeView IP 800). You can customize the PC names, up to a maximum of 10 characters. The factory default names are from "SYSTEM 01", "SYSTEM 02", etc.

- Use the up arrow key "↑" or down arrow key "↓" to select the port. After you have selected the port, you can press the <Enter> key to switch to the PC connected to that port. Press the "INS" key to edit the PC name. After you are finished, press the <Enter> key to save the information.

- Use the <PgUp> key or <PgDn> key for selecting the previous or next Bank number.

- Use the <Tab> key to select items like Bank, OSD, SCAN, CHANGE PASSWORD,

31

CONSOLE ON/OFF, etc.
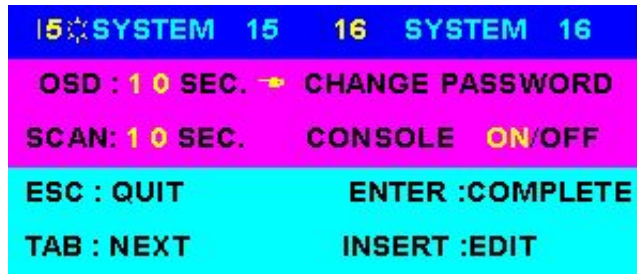
- "OSD: 10 SEC" is the amount of time the system name will be displayed on the monitor after the computer is selected. This value can be set from 05 sec to 99 sec. The factory default value is 10 sec.

- "SCAN TIME" is the scan interval from one PC port to next PC during Auto Scan mode. The default scan time is 10 sec and the maximum scan time is 99 sec.

- "CHANGE PASSWORD" is used to change the password for accessing the systems. The default password is 8 digits "00000000".

- An enter password window appears when you select this item. The maximum password is 8 digits. After you key in the password and press the <Enter> key, another window appears to confirm the password you entered.
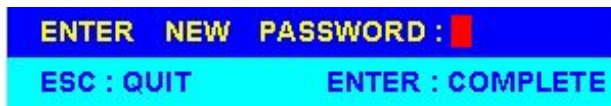
- You need to retype the password again to verify.

- "CONSOLE ON/OFF" determines whether the password needs to be entered to access the console.   "CONSOLE ON" means that any user can access the console. "CONSOLE OFF" means that the password needs to be entered to access the console. Once the password is

entered once to access the console, this value will be set to "CONSOLE ON". Remember to set it to "CONSOLE OFF" again if you want to lock it after closing the console. Also, if the current CONSOLE is ON state and you reset KVM switch, the CONSOLE will set the ON state back to OFF state.

- When you finish setting the system name and exit the OSD mode, you will find the active system name displayed at the top-left corner of monitor. You can press the <Esc> key to clear the message right away if you don't need it.

- If you want the OSD to return back to factory default value, you can enter the key combination <Scroll Lock>, <Scroll Lock>, <R>. The seven segment Bank LEDs on the front panel will flash during the refresh process.

- When the OSD value is back to default settings, the seven segment Bank LEDs on the front panel will stop flashing.

5.8   Logging In And Logging Out

5.8.1   Logging In

Launch the web browser and enter the address of the freeView IP 800 in the Address Bar. The address used can be an IP address or a host and domain name, in the case where the DNS server has a symbolic name. For example, type the following in the address line of the web browser when establishing an unsecured connection:

http://<IP address of freeView IP 800>

When using a secure connection, type in:

https://<IP address of freeView IP 800>

The login page will be displayed (Figure 5-2).
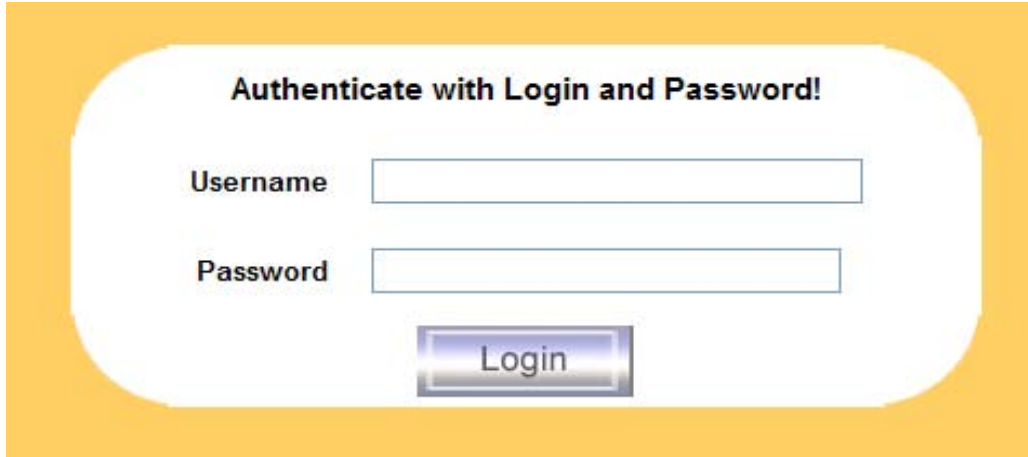
Figure 5-2: Login Screen

The device has a built-in super user that has full access to the device.   The default username and password for the super user are show in Table 5-12

Login name	super (factory default)
Password	pass (factory default)

Table 5-2: Default User Settings

Note: The super user cannot access the device via the serial interface.

Note: Change the super user password as soon as possible.   Failure to do so will pose a severe security risk and will allow unauthorized users to access the device.

Navigation

After logging into the freeView IP 800, the main page shown in Figure 5-3 will be displayed. This page consists of three parts: the buttons on the upper side allow the user to navigate within the web interface (see Table 5-3 for details). The lower left frame contains a navigation bar which allows the user to switch between the different sections of the unit. The lower right frame displays details of the menu item selected on the left frame.
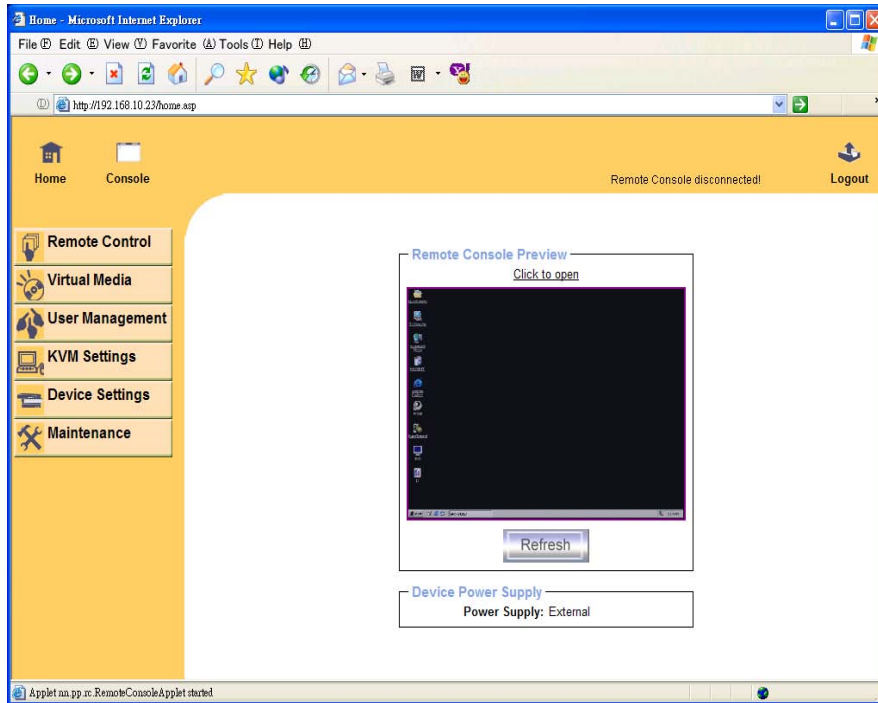
Figure 5-3: Main Page

	Return to the main page of the freeView IP 800.
	Show the remote console.
	Log out of the web interface.

Table 5-3: Web Interface Icons

5.8.2   Logging Out

To log out of the web interface, click the Logout button on the main window. The user will also be logged out automatically after 30 minutes of inactivity.

5.9   The Remote Console

General description

The Remote Console is the redirected screen, keyboard and mouse of the remote host system

connected to the freeView IP 800.

Figure 5-4: Remote Console

The Remote Console window is a Java Applet that establishes its own connection to the freeView IP 800. The protocol used by the Remote Console is RFB (Remote Frame Buffer Protocol). Currently, RFB uses port number 443 to establish a connection. For proper operation, ensure that the local network environment allows traffic on port 443.

Note: If the freeView IP 800 is connected to the Internet through a proxy server without NAT, the Remote Console will not be available from the WAN interface because web proxies are not able to relay the RFB packets.
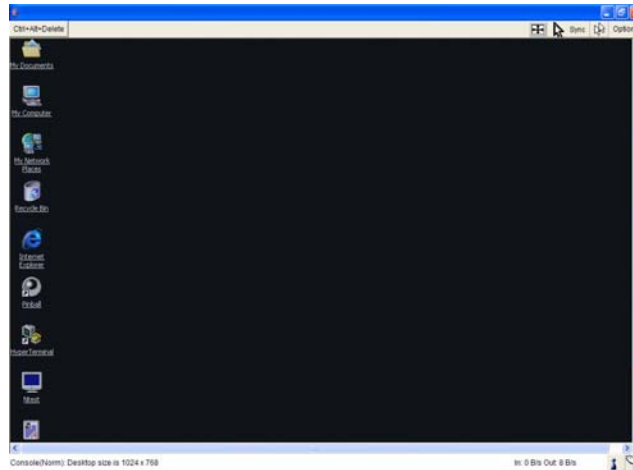
In case of problems, consult the network administrator for proper network configuration.

5.10 Main Window

Starting the Remote Console will open another additional window which displays the screen content of the host system. The Remote Console will behave the same as if it was being used locally, including the keyboard and mouse. However, the reaction time for the keyboard and mouse will have a slight delay. The severity of the delay depends on the bandwidth available to access the unit. Also, special keyboard combinations (e.g. <Ctrl>-<Alt>-<Del> in Windows) will affect the local system and not the remote system. See the next section for more details.

Note: If a keyboard whose language is different from the host system's default language is used (e.g. a US English local keyboard is used to control a remote host running a German operating system), the local language will be used instead of the remote language. In the previous example, US characters will be sent to the host instead of German characters. To emulate the remote host language, select the appropriate language using the Local Keyboard option in the dropdown menu. See the next section for more details.

The Remote Console window will automatically adjust to fit the size of the remote screen.

However, the Remote Console window can be resized manually in the local window system the same way as other applications.

Note: The Remote Console window must be selected in the local operating system in order for mouse and keyboard input to be sent to the remote host.

5.10.1   Remote Console Control Bar

The top bar of the Remote Console window shown in Figure 5-5 contains the control bar. The control bar displays the state of the remote device and also allows the user to change the Remote Console settings.
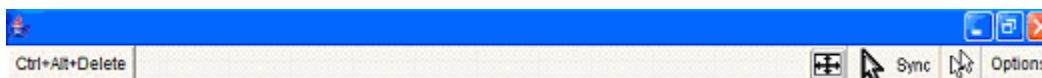

Figure 5-5: Remote Console Control Bar

Ctrl+Alt+Delete
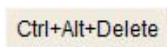
This button sends the key combination "Control-Alt-Delete" to the remote system (see Section 6 for instructions on defining new key combination buttons).

Auto Adjust button

If the video display becomes distorted, click this button and wait a few seconds while the device tries to automatically readjust the video settings.

Sync mouse button

This button activates the mouse synchronization process. Choose this option to synchronize the local with the remote mouse cursor. This is especially necessary when using accelerated mouse settings on the host system. In general, there is no need to change mouse settings on the host. This button is only available when using double mouse mode.

Single/Double Mouse Mode

This button switches between Single Mouse Mode (only the remote mouse pointer is visible) and Double Mouse Mode (both remote and local mouse pointers are visible and need to be synchronized). Single mouse mode is only available if using SUN JVM 1.3 or higher.

Options Options

This button opens the Options menu

Figure 5-6: Remote Console Options Menu

A short description of the options follows.

Monitor Only

Toggles Monitor Only mode on and off. If Monitor Only is enabled, remote console interaction is disabled and only monitoring is possible.

Exclusive Access

Toggles Exclusive Access mode if the user has the appropriate access level. When Exclusive Access is enabled, other users cannot open the Remote Console until the current user disables Exclusive Access or logs off the system.

A change in access mode is also visible in the status line (Figure 5-7).

Figure 5-7: Remote Console Exclusive Mode

Scaling

Allows the user to scale down the display of the Remote Console. The user can still use both the

mouse and the keyboard; however the scaling algorithm may distort some items on the display.
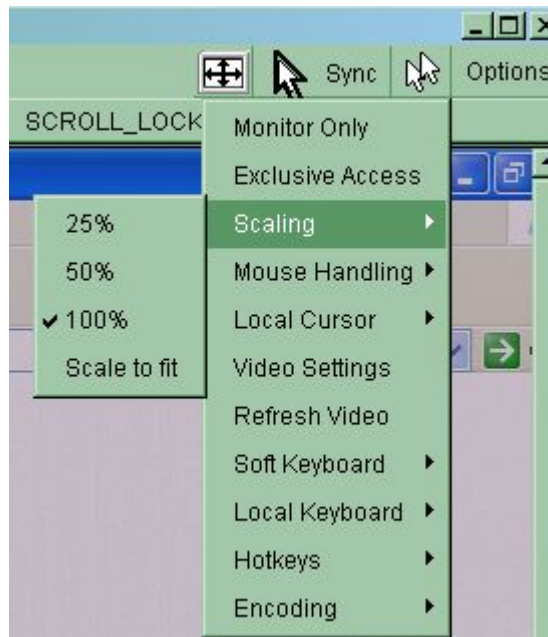
Figure 5-8: Remote Console Options Menu – Scaling

Mouse Handling

The submenu for mouse handling offers two options for synchronizing the local and the remote mouse pointer.

Fast Sync: The fast synchronization is used to correct a temporary, but fixed skew.

Intelligent Sync: Use this option if fast sync does not work or if the mouse settings have been changed on the host system.

Note: Intelligent Sync takes more time than Fast Sync. Use the auto adjustment function or manual correction in the Video Settings panel to setup the picture.

Local Cursor

Offers a list of different cursor shapes to choose from for the local mouse pointer. The selected shape will be saved for the current user and activated the next time this user opens the Remote Console. The number of available shapes depends on the Java Virtual Machine; a version of 1.2 or higher offers the full list.

Figure 5-9: Remote Console Options Menu – Local Cursor

Video Settings

This option opens a panel for changing the video settings for the freeView IP 800. The unit features two different dialogs, which influence the video settings:

Video Settings Through The Web Interface

This option enables the local video port. This option determines whether or not the video output from the host is transmitted to the local monitor.

The Noise Filter option defines how the freeView IP 800 reacts to small changes in the video input signal. A large filter setting uses less network traffic and leads to a faster video display, but small changes in the display may not be recognized and updated on the remote immediately. A small filter setting displays all changes on the remote host instantly but will produce more network traffic (depending on the quality of the video input signal). The default setting should be suitable for most situations.
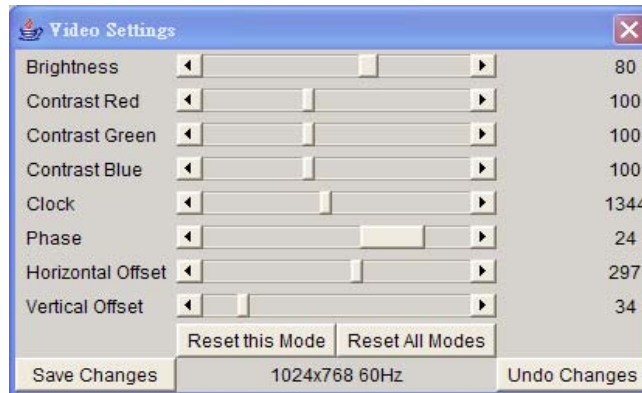
Video Settings Through The Remote Console

Figure 5-10: Video Settings Panel

Brightness: Controls the brightness of the picture.

Contrast: Controls the contrast of the picture.

Clock: Defines the horizontal frequency for a video line and depends on the video mode. Different video card types may require different values. The default settings in conjunction with the auto adjustment procedure should be adequate for common configurations. If the picture quality is still poor after auto adjustment, change this setting together with the sampling phase to achieve a better quality.

Phase: Defines the phase for video sampling, used with the sampling clock setting to control the display quality.

Horizontal Position: Adjusts the horizontal position of the screen.

Vertical Position: Adjusts the vertical position of the screen.

Reset this Mode: Reset current mode specific settings to the factory-made defaults.

Reset all Modes: Reset all modes to the factory-made defaults.

Save Changes: Save changes permanently.

Undo Changes: Restore last saved settings.

Soft Keyboard

Figure 5-11: Soft Keyboard

- **Show**

Opens the Soft-Keyboard screen (Figure 5-11). The Soft-Keyboard is necessary in the case where the host system uses a completely different language and country mapping from the administration machine.

- **Mapping**

Used for choosing the appropriate language and country mapping of the Soft-Keyboard.
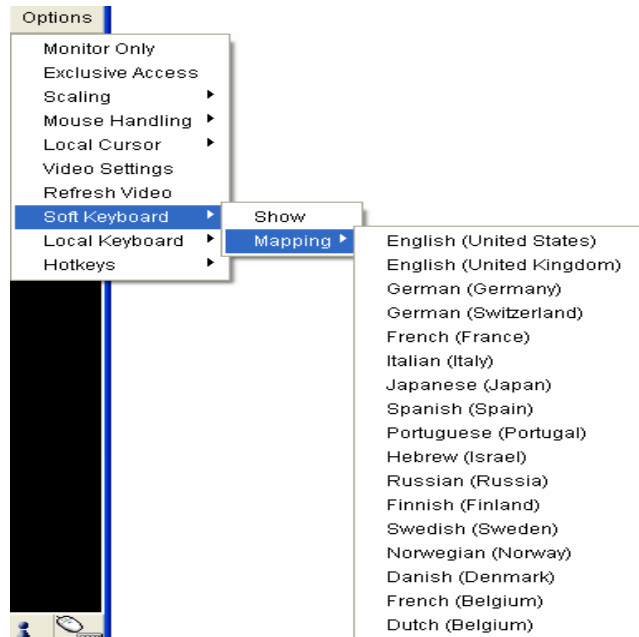

Figure 5-12: Soft Keyboard Mapping

- **Local Keyboard**

Used to change the language mapping of the Remote Console Applet. Under normal circumstances, the applet automatically determines the appropriate value. However, the applet may not determine the correct value depending on the particular JVM and the browser settings. A

typical example is a German localized system that uses an US-English keyboard mapping. In this case the Local Keyboard will need to be changed to the correct setting manually.

- **Hotkeys**

Opens a list of defined hotkeys. By choose an entry, the selected command will be sent to the host system.

A confirmation dialog can be added that will be displayed before sending the selected command to the remote host. Select "OK" to perform the command on the remote host.
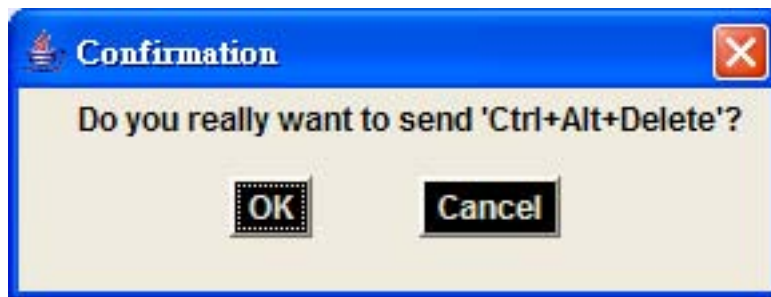
Figure 5-13: Remote Console Confirmation Dialog

Encoding

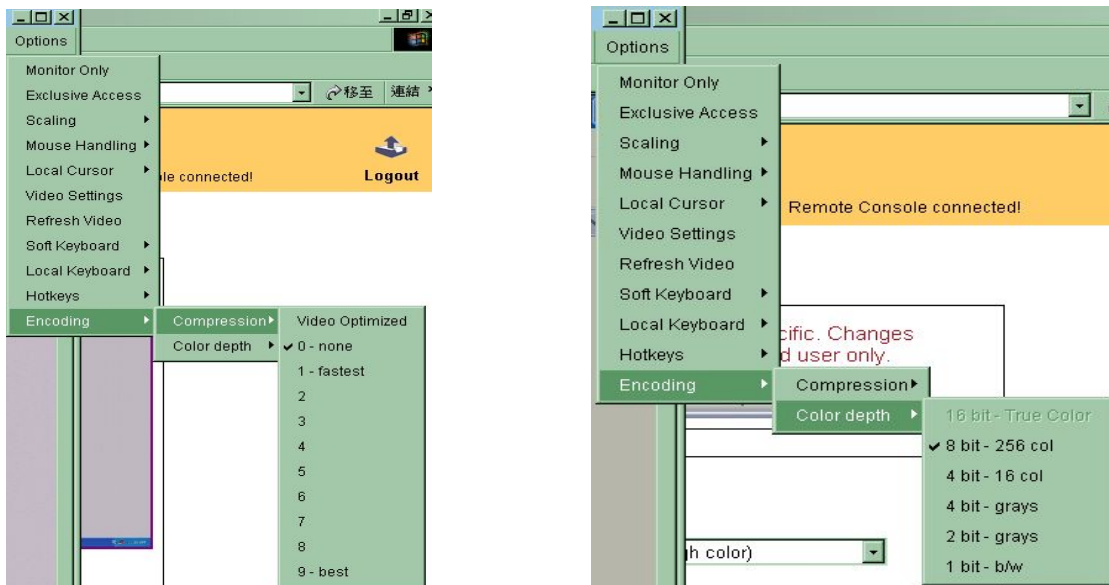**Figure 5-14: Encoding**

Allows the user to adjust both the compression rate and the colour depth individually. Depending on the selected compression rate, the data stream between the freeView IP 800 and the Remote Console will be compressed in order to save bandwidth. Increasing the compression rate requires more resources from the freeView IP 800, thus should not be used when multiple users

are accessing the remote console simultaneously.

The default color depth is 16 Bit (65536 colors). The other color depths are intended for slower network connections since they require less bandwidth. Therefore compression level 0 (no compression) uses only 16 Bit color depth. At lower bandwidths, only 4 Bit (16 colors) and 2 Bit (4 gray scales) are recommended for typical desktop interfaces. Photo-quality pictures have best results with 4 Bit (16 gray scales). 1 Bit color depth (black/white) should only be used for extremely slow network connections.

5.10.2   Remote Console Status Line

Status line

The status line shows both the console and the connection state. The size of the remote screen is displayed as well. Figure 5-15 shows a Remote Console with a resolution of 1024x768 pixels. The value in brackets describes the connection to the Remote Console. "Norm" indicates a standard connection without encryption; "SSL" indicates a secure connection.
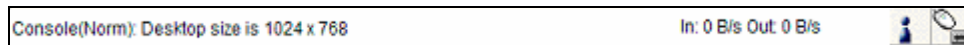
Figure 5-15: Status Line

Furthermore, both the incoming ("In") and the outgoing ("Out") network traffic are visible in kb/s. If compressed encoding is enabled, a value in brackets displays the compressed transfer rate.
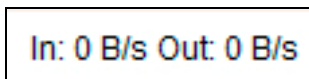
Figure 5-16: Bandwidth Usage

For more information about Monitor Only and Exclusive Access settings, see the next section.

6 Menu Options

6.1 Remote Control

The Remote Control menu allows the user to access the host system via web interface or Telnet.

6.1.1 KVM Console
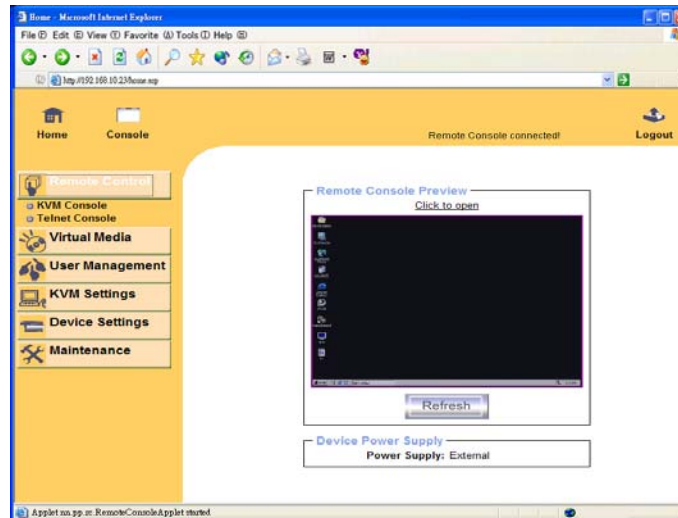
Figure 6-1: KVM Console

There are several methods to open the Remote Console window: click the Console icon on the top bar, click the menu entry KVM Console on the left menu bar, or click on the console picture on the right. To refresh the static picture of the remote host screen, click on the "Refresh" button.

6.1.2 Telnet Console
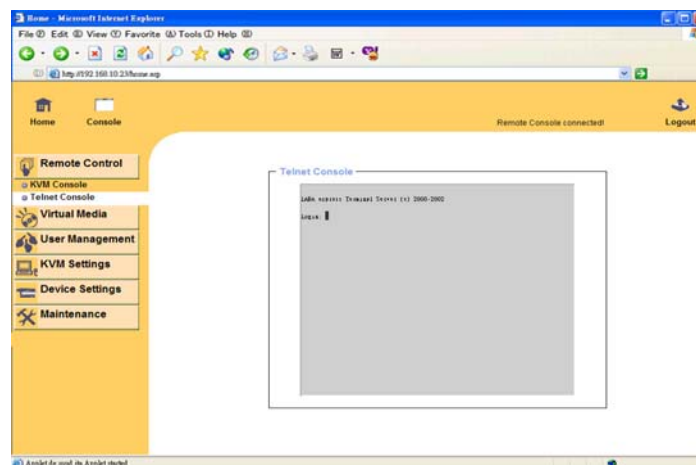
Figure 6-2: Telnet Console

The freeView IP 800 features a Telnet server that enables the user to connect to the host via a standard Telnet client. If the Telnet program uses a VT100, VT102 or VT220 terminal emulation

(or a similar emulation), it is possible to perform a console redirection as long as the host machine is using a text based operating system (e.g. Unix).

Connecting to the freeView IP 800 requires a telnet client on the local machine. To access the device, run the telnet program and specify the IP address of the unit. For example, if the unit's IP address is 192.168.1.22, type in "telnet 192.168.1.22" in Unix or Windows. Once connected, the user will be prompted for username and password. The credentials for authentication are identical to those of the web interface.

Once the user has successfully logged into the device, a command line will be presented and the user can enter management commands.

The Telnet interface supports two operation modes: the command line mode and the terminal mode. The command line mode is used to control or display device parameters. In terminal mode the connection is made from the local machine to the device connected to the serial port on the unit (if the serial settings are set correctly). All user input on the local machine are redirected to the device connected to the serial port and the response is displayed on the Telnet interface.

The following list shows the commands available in mode command and their usage.

Command	Description
help	Displays the list of available commands
cls	Clears the screen
quit	Exits the current session and disconnects from the client
version	Displays the release information
terminal	Starts the terminal pass-through mode for the serial port. The key sequence "esc exit" switches back to the command mode. The command has an optional parameter (1 or 2) to select the desired serial port for pass-through access (only number 1 is supported at this time).

Table 6-1: Telnet Commands

6.2   User Management

The User Management menu allows the user to manage user accounts on the freeView IP 800.

6.2.1 Change Password
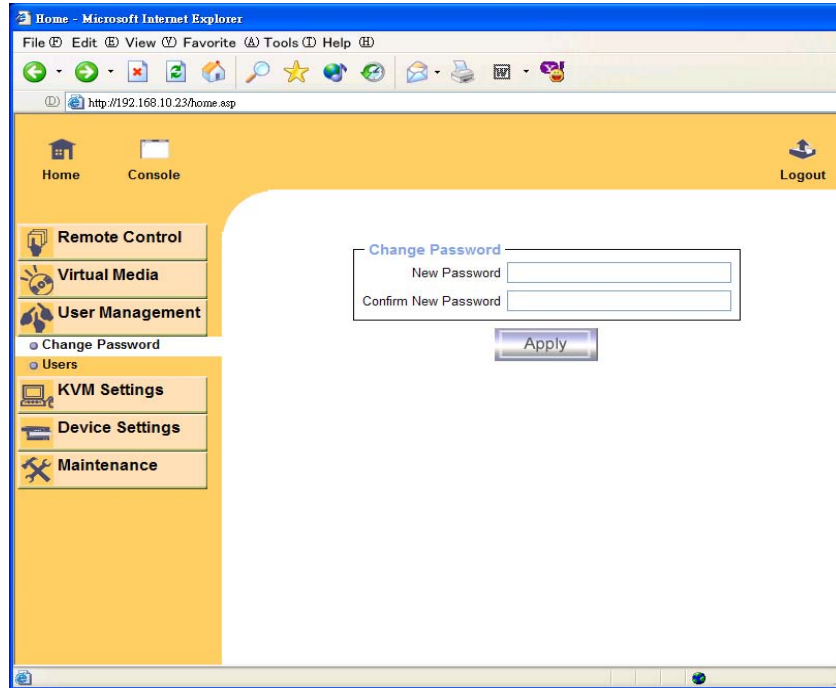
Figure 6-3: Set Password

To change the current user's password, enter the new password in the upper entry field. Retype the password in the filed below. Click "Apply" to submit the changes.

6.2.2   Users And Groups
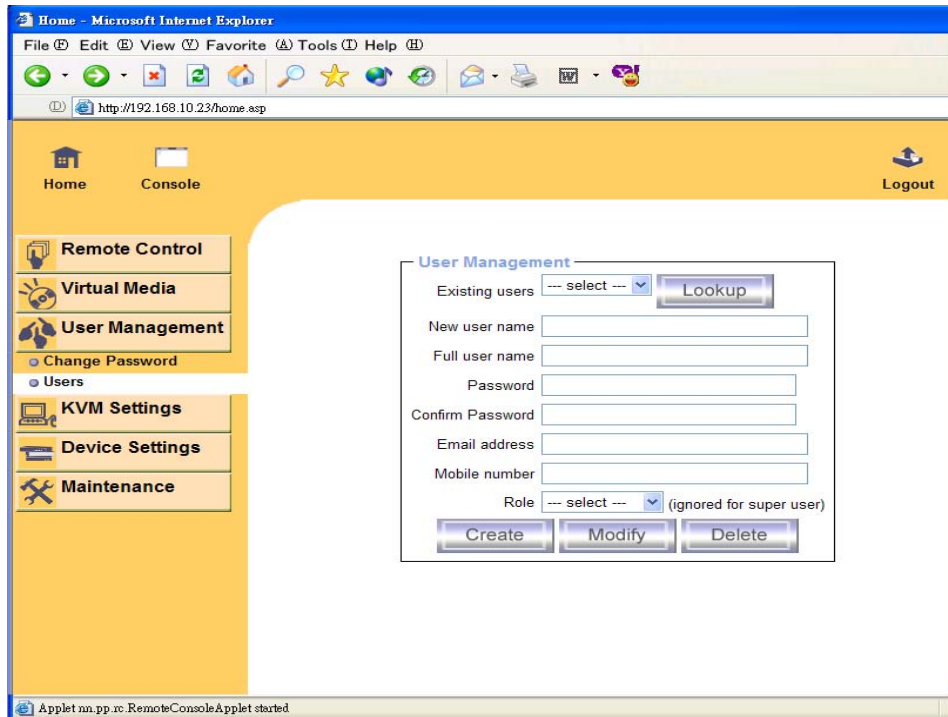
Figure 6-4: Set User

The freeView IP 800 comes with 2 pre-configured user accounts that have fixed permissions. The account "super" has all possible rights to configure the device and use all of the functions available. The account "user" only has permission to open and use the Remote Console.

By default, both accounts have the password pass. Remember to change these passwords immediately after the device has been installed and accessed for the first time.

While the "user" account never sees the following options, the "super" account can change the name and password for both accounts.

Existing users: Select an existing user for modification. Once a user has been selected, click the lookup button to see the user information.

New user name: The new user name for the selected account.

Password: The password for the login name. It must be at least four characters long.

Confirm password: Confirm of the password above.

6.3   KVM Settings

The KVM Settings menu allows the user to change settings related to the remote console.

6.3.1   User Console

The settings for the User Consoler are user specific. Meaning the super user can customize these settings for each user separately. Changing the settings for one user does not affect the settings for the other users.
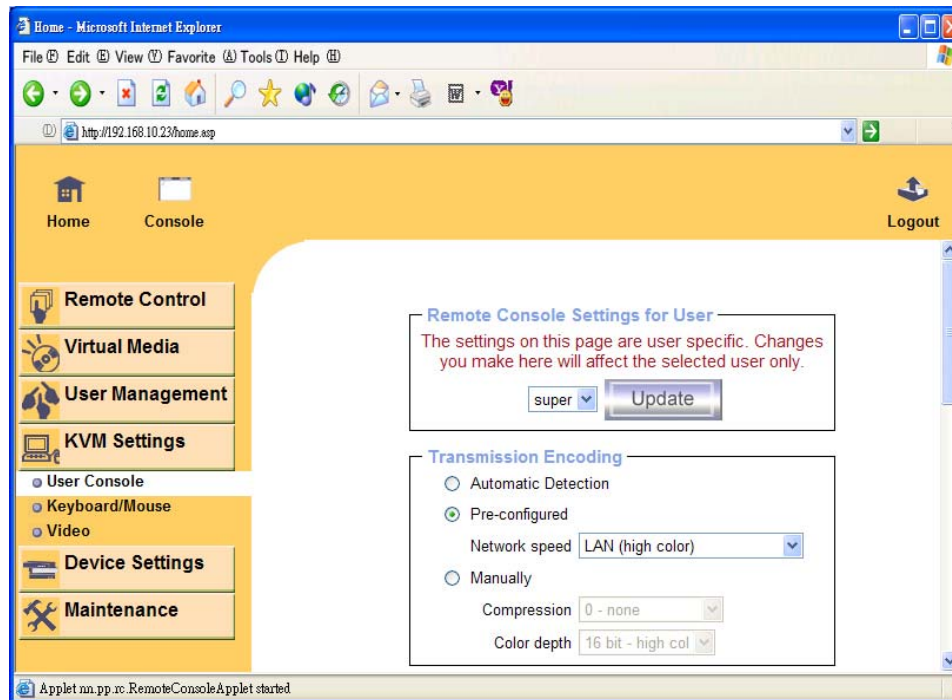
Figure 6-5: User Console Settings (Part 1)

User select box: This selection box displays the user ID which is being modified. The "super" user can change the settings of other users.

Transmission Encoding: The Transmission Encoding setting changes the image-encoding algorithm that is used to transmit the video data to the Remote Console window. It is possible to optimize the speed of the remote screen depending on the number of users working at the same time and the bandwidth of the connection (Modem, ISDN, DSL, LAN, etc.).

- **Automatic detection**: The encoding and the compression level is determined automatically from the available bandwidth and the current content of the video image.

- **Pre-configured:** The pre-configured settings deliver the best result because of optimized adjustment of compression and colour depth for the indicated network speed.

- **Manually:** Allows both the compression rate and the colour depth to be adjusted individually. Depending on the selected compression rate the data stream between the freeView IP 800 and the Remote Console will be compressed in order to save bandwidth. Increasing the compression rate requires more resources from the freeView IP 800, thus should not be used

when multiple users are accessing the remote console simultaneously. The default color depth is 16 Bit (65536 colors). The other color depths are intended for slower network connections since they require less bandwidth. Therefore compression level 0 (no compression) uses only 16 Bit color depth. At lower bandwidths, only 4 Bit (16 colors) and 2 Bit (4 gray scales) are recommended for typical desktop interfaces. Photo-quality pictures have best results with 4 Bit (16 gray scales). 1 Bit color depth (black/white) should only be used for extremely slow network connections.

Figure 6-6: User Console Settings (Part 2)

Remote Console Type: Specifies which Remote Console Viewer to use, the Default Java-Virtual Machine or Sun Microsystems Java Browser Plug-in.

- **Default Java VM:** Selects the default Java Virtual Machine of the Browser. This may be the Microsoft JVM or the Sun JVM depending on the configuration. Use of the Sun JVM may also be forced by selecting Sun Microsystems Java Browser Plug-in

- **Sun Microsystems Java Browser Plugin:** Instructs the web browser of the local system to use the JVM from Sun Microsystems. The JVM in the browser is used to run the code for the Remote Console window, which is a Java Applet. If this box is checked and the appropriate Java plug-in is not already installed on the system, it will be downloaded and installed automatically. Once installation begins, follow the step by step instructions in install the virtual machine. The advantage of downloading Sun's JVM is that it provides a stable and identical Java Virtual Machine across different platforms. The Remote Console software is optimized for this JVM version and offers a wider range of functionality when run in Sun's JVM.

Miscellaneous Remote Console Settings:

- **Start in Monitor Mode:** Sets the initial value for the monitor mode. By default the monitor mode is off. If this feature is turned on, the Remote Console window will start in read only mode.

- **Start in Exclusive Access Mode:** Enables exclusive access mode immediately at Remote Console startup. This forces the Remote Consoles of all other users to close. No one can open the Remote Console at the same time again until this user disables exclusive access or logs off.

Mouse Hotkey: Allows the user to specify a hotkey combination which starts either the mouse synchronization process if pressed in the Remote Console, or is used to leave the single mouse mode.

Remote Console Button Keys: Button Keys allow simulating keystrokes on the remote system that cannot be generated locally. The reason for this might be a missing key on the keyboard or that the operating system on the local machine is catching this keystroke already. Typical examples are <Control>+<Alt>+<Delete> and <Alt>+<Tab> on Windows and DOS, what are always caught locally, or <Control>+<Backspace> on Linux for terminating the X-Server. The syntax to define a new Button Key is as follows:

[confirm] <keycode>[+|-[*]<keycode>]*

"confirm" requests confirmation by a dialog box before the key strokes will be sent to the remote host.

"keycode" is the key to be sent. Multiple key codes can be concatenated with a plus, or a minus sign. The plus sign builds key combinations, all keys will be pressed until a minus sign or the end of the combination is encountered. In this case all pressed keys will be released in reversed sequence. The minus sign builds single, separate key presses and releases. The star inserts a pause with duration of 100 milliseconds.
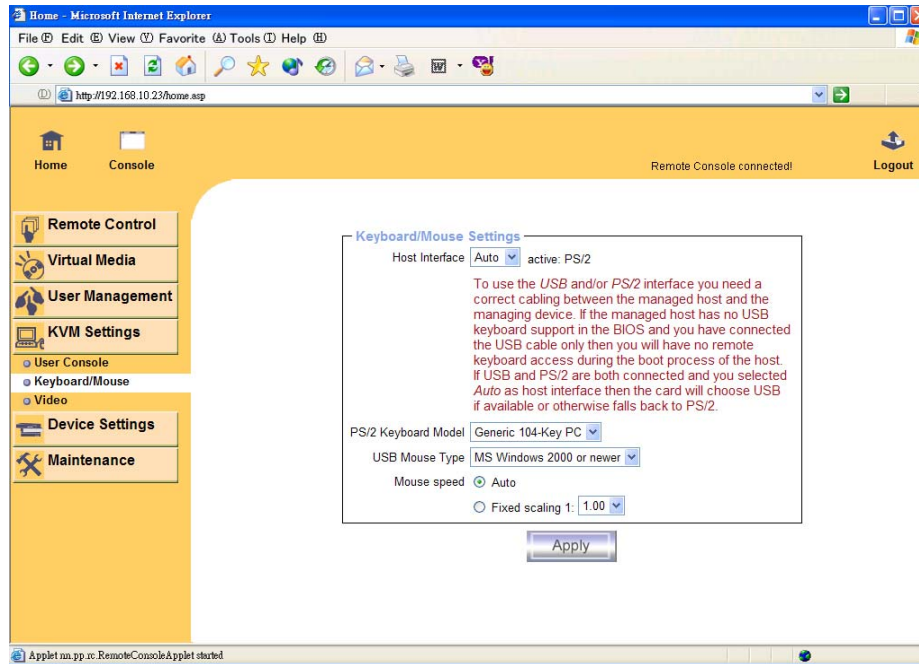
6.3.2 Keyboard/Mouse

Figure 6-7: Keyboard and Mouse Settings

Host Interface: Sets which interface the mouse is connected to. The choices are "Auto" for automatic detection, "USB" for a USB mouse, and "PS/2" for a PS/2 mouse.

Note: To use the USB and/or PS/2 interface, the correct cabling (USB and/or PS/2) needs to be connected between the freeView IP 800 and the host server. If the managed host does not support USB keyboards at the BIOS level, and a USB interface is being used, remote keyboard access will not be available during the boot process of the host. If both USB and PS/2 interfaces are connected and "Auto" is selected as the host interface, the device will select "USB" if available; otherwise it falls back to "PS/2".

To have USB remote keyboard access during the boot process of the host, the following conditions must be fulfilled:

- The host BIOS must have USB keyboard support

- The USB cable must be connected and must be selected in the Host interface option

PS/2 Keyboard Model: Selects the keyboard layout. Available options are "Generic 101-Key PC" for a standard keyboard layout, "Generic 104-Key PC" for a standard keyboard layout extended by three additional windows keys, "Generic 106-Key PC" for a Japanese keyboard, and "Apple Macintosh" for an Apple Macintosh keyboard.

USB Mouse Type: Selects the USB mouse type. Available options are "MS Windows 2000 or

newer" for MS Windows 2000 or Windows XP, or "Other Operating Systems" for MS Windows NT, Linux, or OS X. In "MS Windows 2000 or newer" mode the remote mouse is always synchronized with the local mouse.

Mouse Speed:

- **Auto mouse speed:** Select this option if mouse acceleration is enabled on the host system. The freeView IP 800 will try to detect the acceleration and speed of the mouse during the mouse sync process.

- **Fixed mouse speed:** Use a direct translation of mouse movements between the local mouse and the remote pointer.

A fixed scaling can also be set which determines the number of pixels the remote mouse pointer is moved when the local mouse pointer is moved by one pixel. This option only works when the mouse settings on the host are linear (i.e. mouse acceleration is disabled).

6.3.3 Video
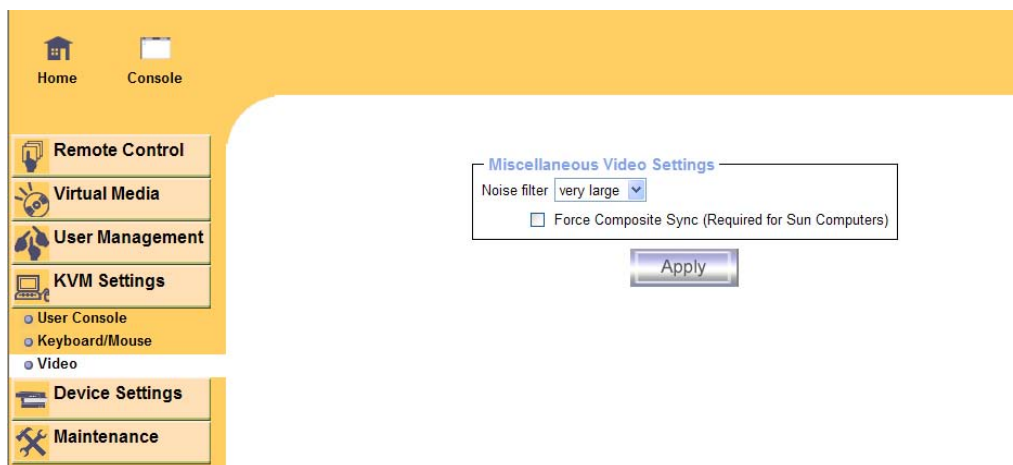
Figure 6-8: Video Settings

Miscellaneous Video Settings

- **Noise filter:** This option defines how the freeView IP 800 reacts to small changes in the video input signal. A large filter setting uses less network traffic and leads to a faster video display, but small changes in the display may not be recognized and updated on the remote immediately. A small filter setting displays all changes on the remote host instantly but will produce more network traffic (depending on the quality of the video input signal). In general, the default setting should be suitable for most situations.

- **Force Composite Sync (Required for Sun Computers):** To support signal transmission from a Sun machine, enable this option. If not enabled, the picture of the remote console will not be visible.

6.4   Device Settings

The Device Settings menu allows the user to configure the freeView IP 800 itself.

6.4.1   Network

The Network Settings panel as shown in Figure 6-9 allows network related parameters to be changed. Each parameter will be explained below. Once applied the new network settings will immediately come into effect.

Note: See Section 4 for instructions on installing the freeView IP 800 initially.

Note: Changing the device's network settings may result in loss of connection if the supplied network settings are incorrect.
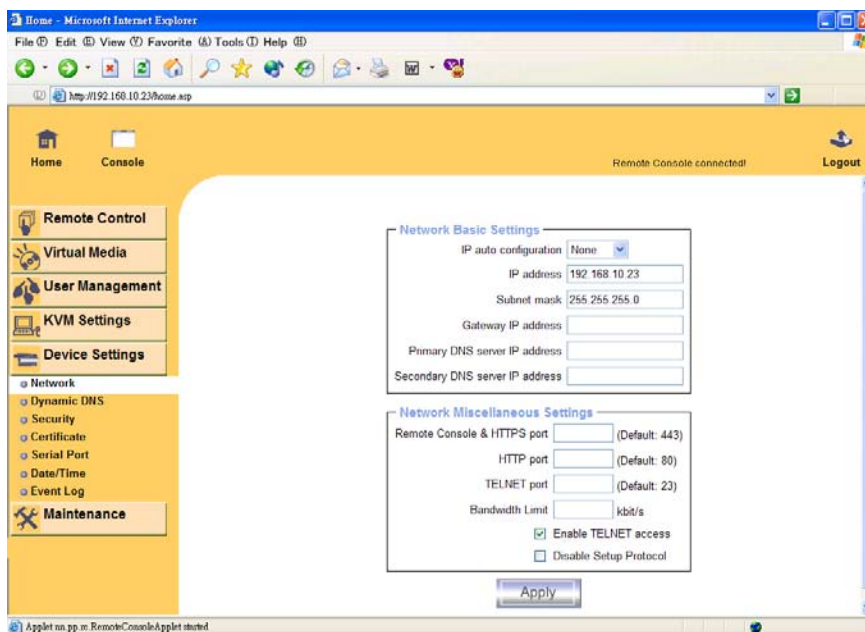
Figure 6-9: Network Settings

IP auto configuration: This option determines if the device should get its network settings from a DHCP or BOOTP server, or none at all (manual IP address). For DHCP, select "dhcp", and for BOOTP select "bootp" accordingly. If "none" is selected, then IP auto configuration is disabled.

IP address: The IP address in of the unit.

Subnet Mask: The subnet mask of the local network.

Gateway IP address: In order for the freeView IP 800 to be accessible from networks other than the local network, this IP address must be set to the local network router's IP address.

Primary DNS server IP Address: IP address of the primary Domain Name Server. If this field is empty, the unit will not be able to perform name resolution.

Secondary DNS server IP Address: IP address of the secondary Domain Name Server. It will be used if the Primary DNS Server cannot be contacted.

Remote Console and HTTPS port: Port number which the device's Remote Console server and HTTPS server are listening on. If left empty the default value will be used.

HTTP port: Port number which the device's HTTP server is listening on. If left empty the default value will be used.

Telnet port: Port number which the device's Telnet server is listening on. If left empty the default value will be used.

Bandwidth limitation: The maximum network traffic generated by the device. Value in kbit/s.

Enable Telnet access: Select this option to allow access to the freeView IP 800 using the Telnet Gateway see Section 6.5.5 for more details.

Disable Setup Protocol: Enable this option to exclude the freeView IP 800 from the setup protocol.
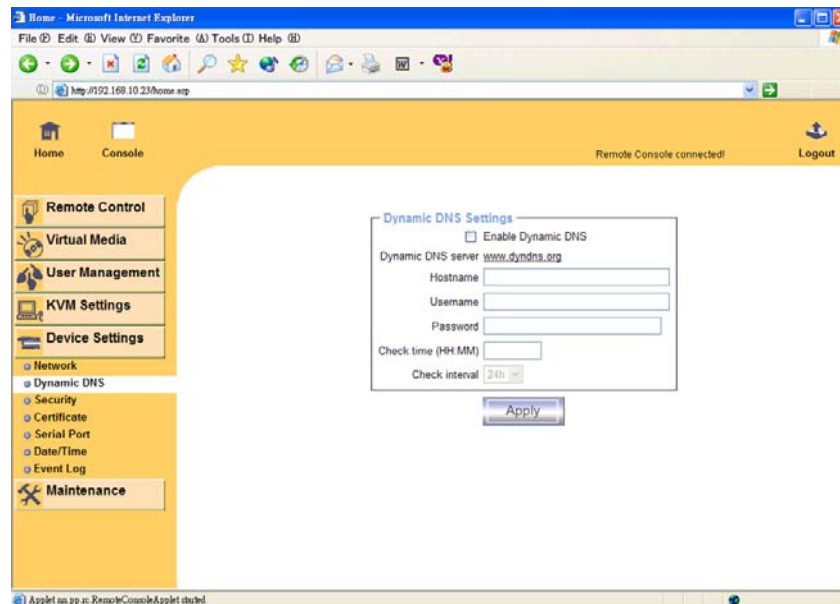
6.4.2   Dynamic DNS

Figure 6-10: Dynamic DNS

A freely available Dynamic DNS service (e.g. dyndns.org) can be used in the scenario shown in Figure 6-11:
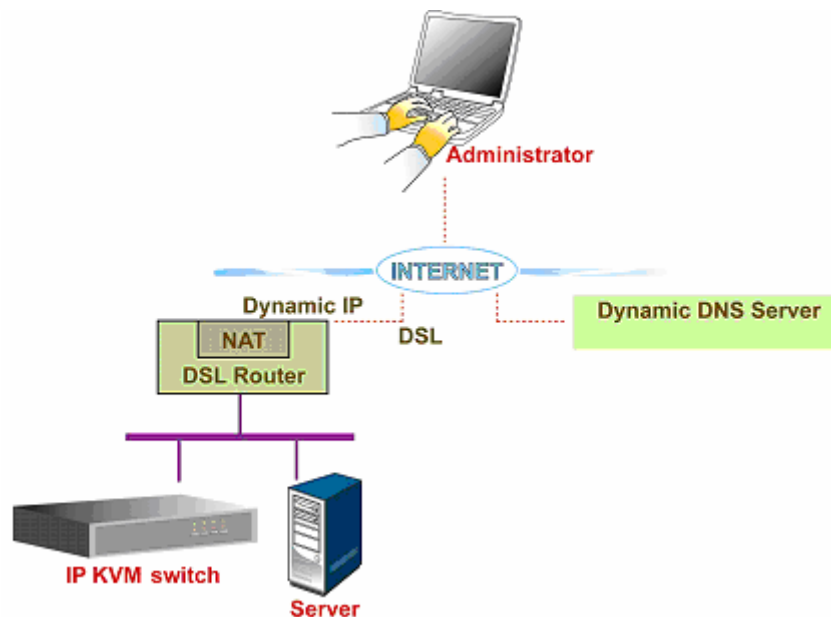
Figure 6-11: Dynamic DNS Scenario

The freeView IP 800 is reachable from the internet via the IP address of the DSL router, which is dynamically assigned by the service provider. Since the administrator does not know the IP address assigned by the provider at any given time, the freeView IP 800 connects to a special dynamic DNS server at regular intervals and registers its IP address there. The administrator can then contact the dynamic DNS server and find the IP address of the device.

The administrator has to register the device that is with the Dynamic DNS service provider and assign a hostname (URL) to it. The Dynamic DNS service provider will assign a nickname and a password to the administrator. The hostname and the account information are needed to determine the IP address of the registered device.

The following steps detail how to enable Dynamic DNS:

- Ensure that the LAN interface of the freeView IP 800 is properly configured.

- Enter the Dynamic DNS Settings configuration dialog as shown in Figure 6-10.

- Enable Dynamic DNS and specify the settings appropriately (see below).

Enable Dynamic DNS: This enables the Dynamic DNS service. This requires a configured DNS server IP address.

Dynamic DNS server: This is the name of the server where the device registers itself at regular intervals. Currently, this is a fixed setting since only dyndns.org is presently supported.

Hostname: This is the hostname of the device that is provided by the Dynamic DNS Server. Use the whole name including the domain, (e.g. testserver.dyndns.org), not just the actual hostname.

Username: The username provided by the Dynamic DNS Server. Spaces are not allowed in the username.

Password: The password provided by the Dynamic DNS Server.

Check time: The time which the device registers itself with the Dynamic DNS server.

Check interval: The time interval which the device registers itself with the Dynamic DNS based on the Check time parameter above.

Note: The freeView IP 800 has its own independent real-time clock. Ensure the time setting on the device is correct; see the section titled "Date and Time".

6.4.3   Security
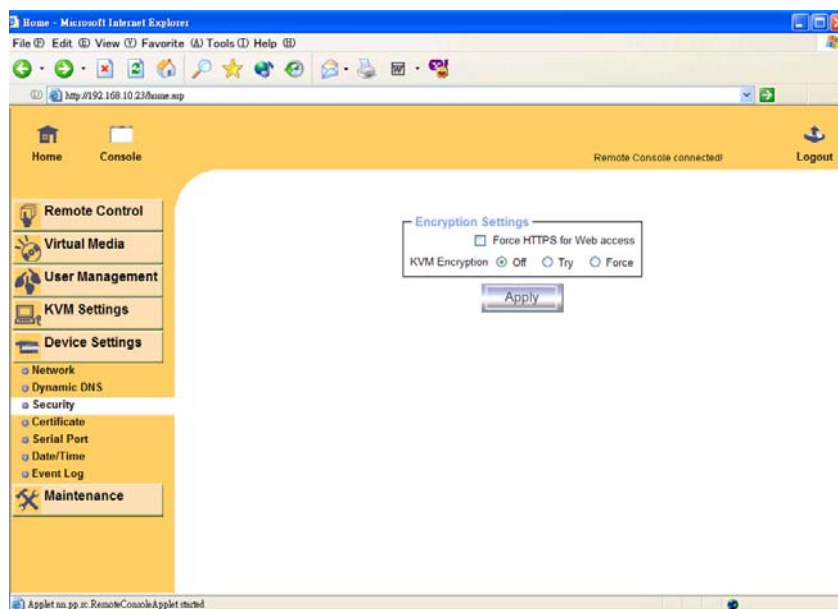
Figure 6-12: Device Security

Force HTTPS: When enabled, this option restricts access to the web interface to HTTPS connections only. The freeView IP will not listen on the HTTP port for incoming connections.

For instructions on creating a customer SSL certificate that is used to identify the freeView IP 800, see the Section 6.5.4 titled "Certificate".

KVM encryption: This option controls the encryption of the RFB protocol. RFB is used by the Remote Console to transmit both the screen data to the administrator machine and keyboard and mouse data back to the host. If set to "Off", no encryption will be used. If set to "Try", the applet tries to create an encrypted connection. If an encrypted connection cannot be made, an unencrypted connection will be used. If set to "Force", the applet tries to create an encrypted connection. If an encrypted connection cannot be made, an error will be reported.

6.4.4   Certificate
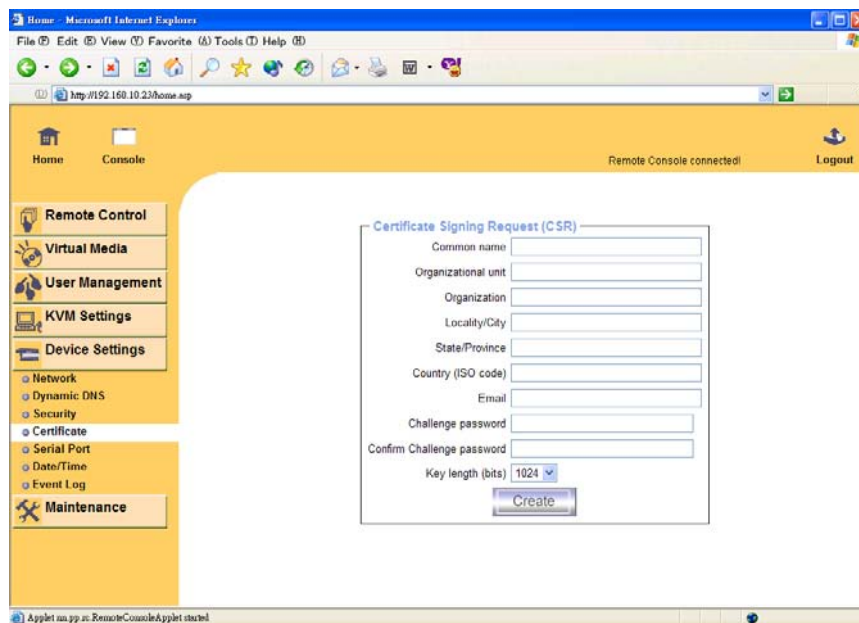

Figure 6-13: Certificate Settings

The freeView IP 800 uses the Secure Socket Layer (SSL) protocol for any encrypted network traffic between itself and a connected client. During the connection establishment, the device has to expose its identity to a client using a cryptographic certificate. By default, this certificate and the underlying secret key is the same for all freeView IP 800's and will not match the network configuration that will the device is connected to. The certificate's underlying secret key is also used for securing the SSL handshake. Hence, there is still a potential security risk when using the default SSL certificate, but it is more secure than no encryption at all.

It is possible to generate and install a new certificate that is unique for a particular freeView IP 800. In order to do this, the freeView IP 800 can generate a new cryptographic key and the associated Certificate Signing Request (CSR) that needs to be certified by a certification authority (CA). A certification authority verifies that the device and identity are legitimate and signs and issues a SSL certificate for the device.

The following steps are necessary to create and install a SSL certificate for the freeView IP 800:

- Create an SSL Certificate Signing Request using the panel shown in Figure 6-13. Complete the fields on the page. The fields are explained below. Once completed, click on the "Create" button which will initiate the Certificate Signing Request generation. The CSR can be downloaded to the local machine with the "Download CSR" button (see Figure 6-14).

- Send the saved CSR to a CA for certification. Once the CA has completed their authentication process, a new certificate will be issued for the device.

- Upload the certificate to the freeView IP 800 using the "Upload" button as shown in Figure 6-14.

Figure 6-14: SSL Certificate Upload

After completing these three steps, the freeView IP 800 will have its own certificate that is used for identifying the card to its clients.

Note: If the CSR on the device is lost or destroyed, it cannot be recovered. The steps above must be completed again in order to obtain a new certificate.

Common name: This is the network name of the freeView IP 800 once it is installed in the network (usually the fully qualified domain name). It is identical to the name that is used to access the device with a web browser (without the "http://" prefix). In case the name given here and the actual network name differ, the browser will pop up a security warning when the unit is accessed using HTTPS.

Organizational unit: This field is used for specifying which department within an organization owns the device.

Organization: The name of the organization.

Locality/City: The city where the organization is located.

State/Province: The state or province where the organization is located.

Country (ISO code): The country where the organization is located. This is the two-letter ISO code, e.g. DE for Germany, CA for Canada, or US for the USA.

Challenge Password: Some certification authorities require a challenge password to authorize later changes to the certificate (e.g. revocation of the certificate). The minimum length of this

password is 4 characters.

Confirm Challenge Password: Confirmation of the Challenge Password

Email: The email address of a contact person that is responsible for the unit and its security.

Key length: This is the length of the generated key in bits. 1024 Bits is sufficient for most cases. Longer keys may result in slower response time of the device during connection establishment.

6.4.5   Serial Port
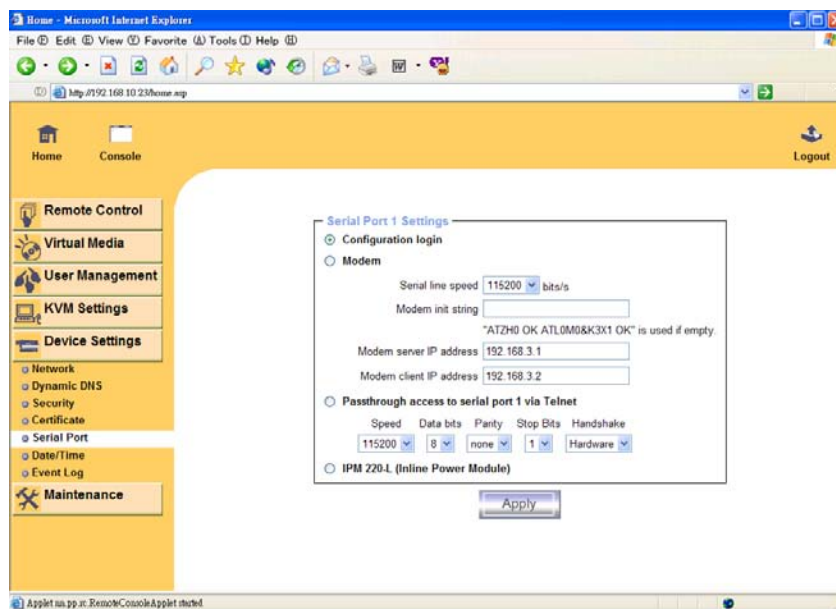
Figure 6-15: Serial Port

The freeView IP 800's Serial Settings (Figure 6-15) allows the user to specify what type of device is connected to the serial port and how to use it.

Configuration or console login: Do not use the serial port for any special function; use it only for the initial configuration (see Table 4-1).

Modem: The freeView IP 800 offers remote access using a telephone line in addition to the standard access over the Ethernet network. The modem needs to be connected to the serial interface of the freeView IP 800.

A user can connect to the freeView IP 800 using a telephone line the same way that it would connect to an Internet Service Provider (ISP). By dialing the telephone number of the modem using third-party modem software on the local computer, the user can connect to the device through normal telephone lines. The connection is established using the Point-to-Point Protocol (PPP). Before connecting to the device, ensure that the console computer is configured correctly. For instance, Windows based operating systems default to PPP for dial-up network connections, which is correct.

The Modem Settings panel sets the parameters used by the client to connect to the device. An explanation of the parameters is included below.

- **Serial line speed:** The speed the freeView IP 800 uses to communicate with the modem. Most modems available today will support the default value of 115200 bps. If an older modem is used and problems occur, try lowering this value.

- **Modem init string:** The initialization string used by the freeView IP 800 to initialize the modem. The default value will work with all standard modern modems directly connected to a telephone line. If a special modem is used or if the modem is connected to a local telephone switch that requires a special dial sequence to establish a connection to the public telephone network, change this setting by entering the correct a new string. Refer to the modem's manual about the AT command syntax to use.

- **Modem server IP address:** This IP address will be assigned to the freeView IP 800 itself during the PPP handshake. Since it is a point-to-point IP connection, almost any IP address is permitted, but it cannot be the same as the Ethernet connection of the device or the client. The default value will work in most cases.

- **Modem client IP address:** This IP address will be assigned to the console computer during the PPP handshake. Since it is a point-to-point IP connection, almost any IP address is permitted, but it cannot be the same as the Ethernet connection of the device or the client. The default value will work in most cases.

Pass-through access to serial port via Telnet: If this option is enabled, a device with a serial interface (e.g. a managed switch) can be controlled by the local computer. Select the appropriate options for the serial port and use the Telnet Console, or a standard Telnet client to connect to the device.

6.4.6   Date And Time
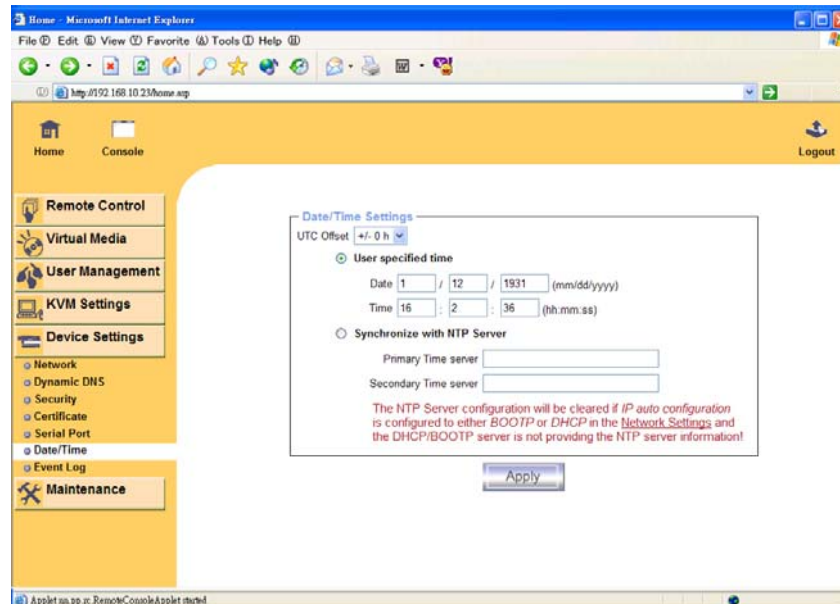
Figure 6-16: Date and Time

This page allows the user to set the internal real-time clock of the freeView IP 800 switch can be set up (Figure 6-16). The time can be set manually or using an NTP (Network Time Protocol) server. If an NTP server is not used, the internal clock will need to be reset if the unit loses power for several minutes. The alternative is to use an NTP server, which set up the internal clock automatically to the current UTC (Coordinated Universal Time, also known as GMT) time. Because the NTP server time is always UTC, the UTC offset must be correct in order for the device to have the correct time.

Note: The device does not adjust for daylight savings time automatically, so the UTC offset will have to be adjusted manually for daylight savings time.

6.4.7   Event Log

Figure 6-17: Event Log

Important events such as a login failure or a firmware update are logged to a selection of logging destinations (see Figure 6-17). Each of these events belongs to an event group, which can be selected separately.
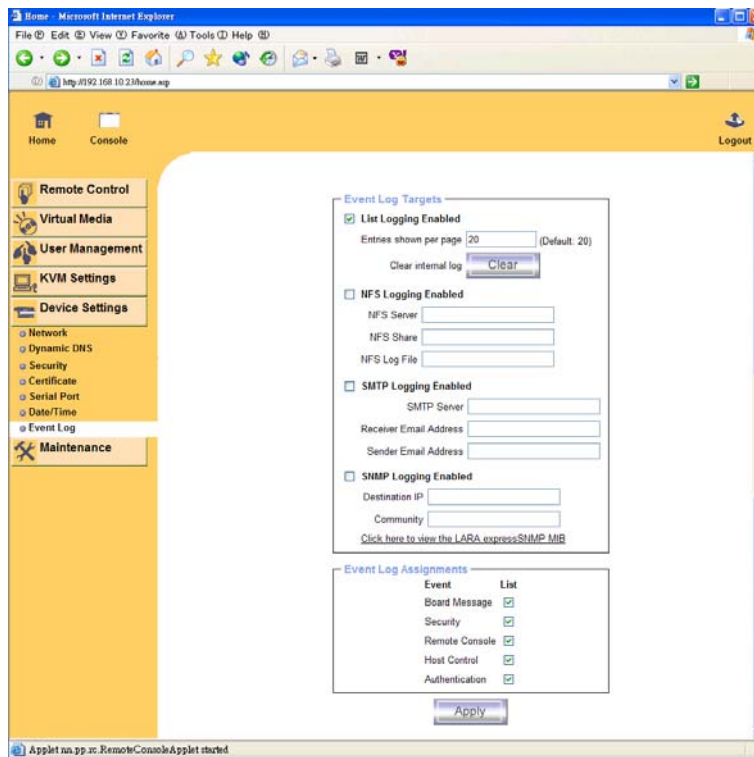
List logging enabled: This is the main method to log events. This method uses the internal log list of the freeView IP 800. To display the log, click on "Event Log" under the "Maintenance" menu. The number of log entries shown per page can be changed in this section, and the log can also be cleared by clicking the "Clear" button.

Note: The maximum number of events that can be recorded in the log is 1000. Any entry added above this will overwrite the oldest entry in the log. Also, if the device is reset through the web interface, the log information will be stored. However, if the device loses power or a hard reset is performed, the log will be cleared.

NFS Logging enabled: If this option is selected, the freeView IP 800 will export the log information to a directory or static link on an NFS server. To write log data from more than one freeView IP 800 to the same NFS share, a unique file name must be defined for each device. Once the NFS settings are complete, click the "Apply" button. The NFS share will be mounted immediately. If the NFS share and the NFS server are not available, an error message will appear.

Note: Unlike the internal log file, the size of the NFS log file is not limited by the device. Every log event will be appended to the end of the file so it will grow continuously. Remember to clean out old log entries from the file regularly.

SMTP Logging enabled: If this option is selected, the freeView IP 800 will e-mail the log to an e-mail address specified in the Sender Email Address field. These e-mails contain the same information as the internal log file and the mail subject is filled with the event group of the occurred log event. In order to use this feature, an SMTP server must be specified which is accessible by the device and does not require authentication. The information should be entered in the following format:

<serverip>:<port>

SNMP Logging enabled: If this option is selected, the freeView IP 800 will send an SNMP trap to a specified destination IP address every time a log event occurs. If the receiver requires a community string, it can be set in the appropriate text field. Most of the event traps only contain one descriptive string with all information about the log event. Only authentication and host power events have their own trap class that consists of several fields with detailed information about the event. A third party SNMP monitor is required to receive the traps.

6.5   Maintenance

6.5.1   Device Information
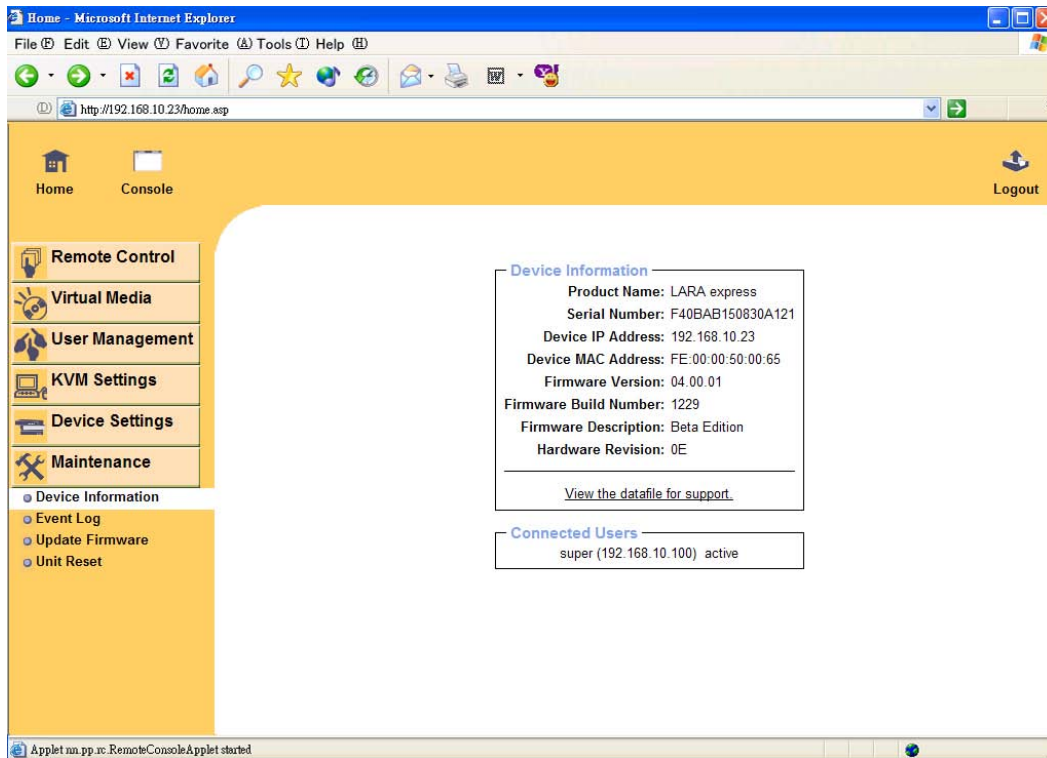
Figure 6-18: Device Information

Board Summary

This section contains a summary with various information about the IP-KVM and its current firmware and allows you to reset the card. You may have a look at Figure 6-18 for an example.

The Data file for support allows you to download the IP-KVM data file with specific support information. This is an XML file with certain customized support information like the serial number etc. You may send us this information together with a support request. It will help us to locate and solve your reported problem.

Figure 6-19: Connected Users

Connected Users

This section shows which users are connected to the device. The user's name, IP address, and current status are displayed. The letters "RC" beside a user's name means that the Remote Console is open. If the Remote Console is opened in exclusive mode, the term (exclusive) will be displayed.

Reset Functions

This section allows you to reset specific parts of the device. Currently this involves the video engine and the PS/2 IP-KVM switch itself. Resetting the card itself is mainly needed to activate a newly updated firmware. It will close all current connections to the administration console and to the Remote Console. The whole process will take about half a minute. Resetting sub devices (e.g. video engine) will only take a few seconds and will not result in closing connections. This section contains summary information about the device and its current firmware.

The Connected Users section shown in Figure 6-19 shows which users are connected to the device. The user's name, IP address, and current status are displayed. The letters "RC" beside a user's name means that the Remote Console is open. If the Remote Console is opened in exclusive mode, the term (exclusive) will be displayed.
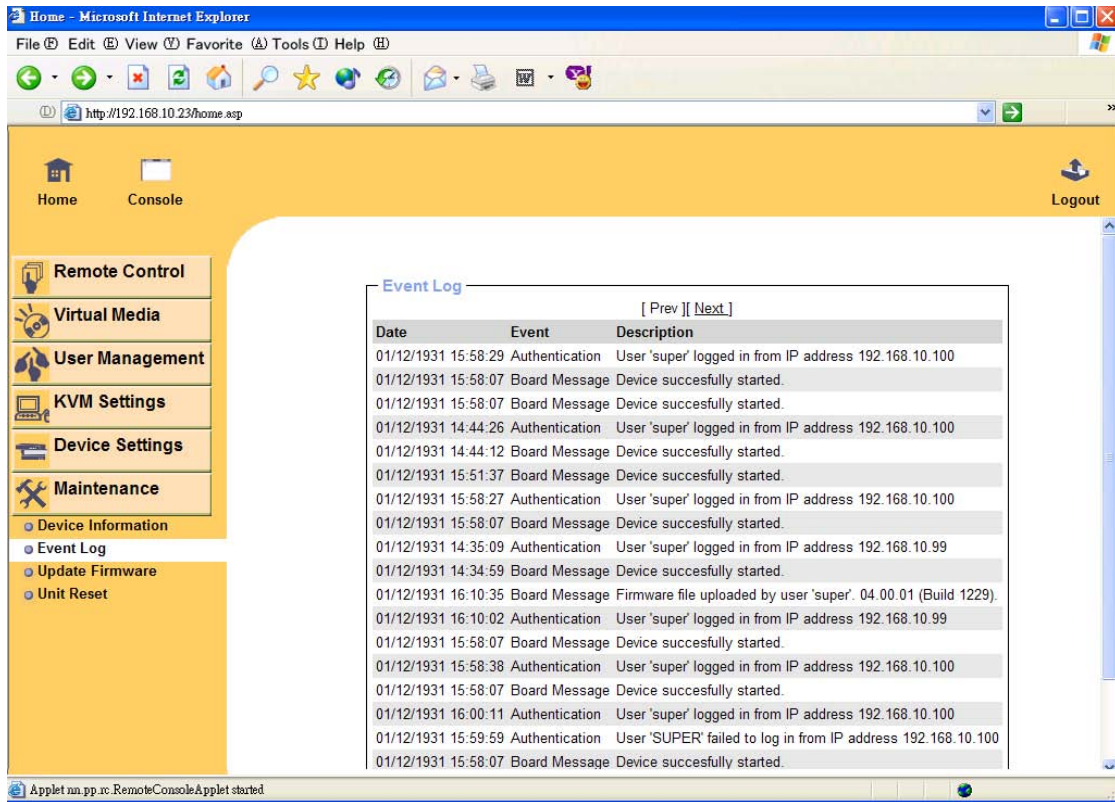
6.5.2   Event log

Figure 6-20: Event Log List

Figure 6-20 shows the log list including events that are logged by the freeView IP 800.

6.5.3 Update Firmware
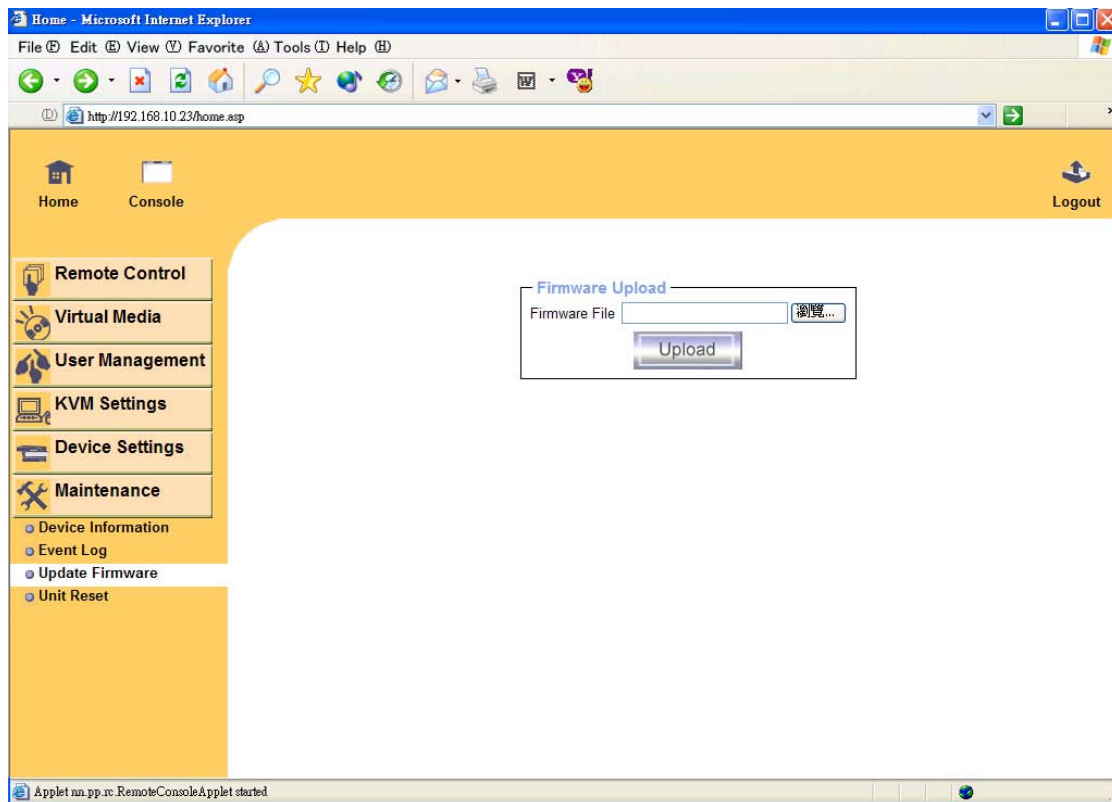
Figure 6-21: Update Firmware

The freeView IP 800 is a complete standalone device. The software that runs on the device is called the firmware. The firmware of the freeView IP 800 can be updated remotely in order to add new functionality or special features.

A new firmware update is a binary file which can be found on the freedom9 website at http://www.freedom9.com. If the firmware file is compressed (file suffix .zip) then it must be unzipped before it can be installed. Windows users can use WinZip from http://www.winzip.com/ to unzip the file. Other operating systems will have their own unzip programs.

Before updating the firmware of the device, the new uncompressed firmware file has to be saved on the local machine.

To update the firmware, follow these steps:

- Save the firmware file on the local computer.

- Type in the path and filename of the firmware file, or click "Browse…" and search for the file on the system.

- Click "Upload".

- Once the firmware file has been uploaded, it is checked to see if it is a valid firmware file and whether there were any transmission errors. In the case of an error, the Upload Firmware function will be aborted.

- Verify the new version of the firmware, and click "Update". **Note:** This process is non reversible and might take a few minutes. Make sure the freeView IP 800 is not powered off during the update process; otherwise the device may be permanently damaged.

- After the firmware has been saved, a prompt will appear to reset the device manually. After the unit is reset, the new firmware will be loaded. However, the user will have to log into the unit again.

- Note: The firmware update procedure is thorough in looking for errors and inconsistencies, reducing the chances of an error occurring. However, only experienced staff or administrators should perform a firmware update. Ensure that the device is not powered off during the firmware upgrade.

6.5.4 Unit Reset
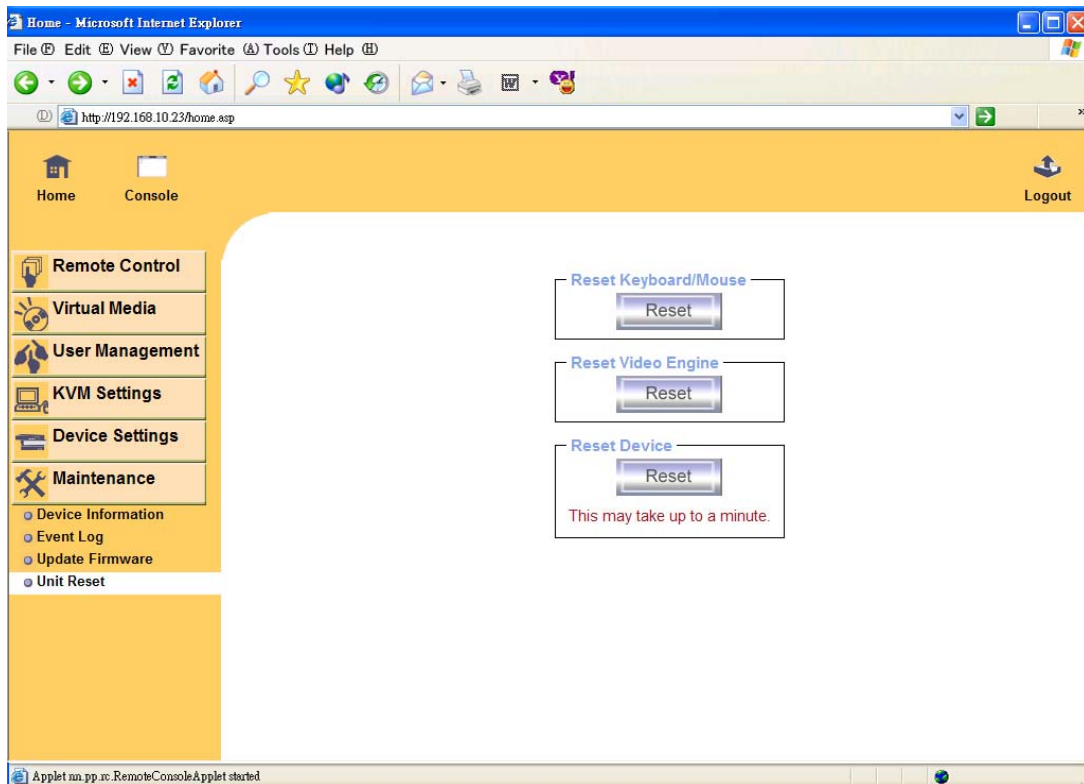
Figure 6-22: Unit Reset

This section allows the user to reset specific parts of the device. The parts include: the keyboard and mouse, the video engine, and the entire device itself. Resetting the device itself is mainly needed to activate a newly updated firmware. It will close all current connections to the

administration console and to the Remote Console. The whole process will take about half a minute. Resetting sub devices (e.g. video engine) will take only a few seconds and does not result in closing connections.

Note: Only the super user is allowed to reset the device.

7 Troubleshooting

- Ensure that all cables are well seated. Label all of the cables with the number for each respective computer to avoid confusion.

- The recommended maximum KVM cable length is 5 meters (16 ft), a longer cable may result in ghosting and degradation. Normally, the cable length is based on the driver capacity of your VGA card and your motherboard PS/2 port. If you need a longer VGA cable, please use a VGA and PS/2 extender.

- The Power Jack polarity is center positive and the power adapter is DC5V, 2.5A.

- If you forget your "password" and it is changed from the default, please contact your supplier.

Q 001: The remote mouse doesn't work or is not synchronized.

A 001: Make sure the mouse settings on the device match the mouse model. There are some circumstances where the mouse synchronization process could behave incorrectly, refer to Section 5.10.1 for more details.

Q 002: The video quality is bad or the picture is grainy.

A 002: Try to correct the brightness and contrast settings (see Section 6.3.3) until the picture improves. Use the auto adjustment feature to correct a flickering video.

Q 003: Can't log into the freeView IP 800.

A 003: Verify the username and password. Be default, the user "super" has the password "pass". Also, ensure that the web browser is configured to accept cookies.

Q 004: The Remote Console window can't connect to the host.

A 004: A firewall may be preventing access to the Remote Console. Make sure that TCP port numbers 80 or 443 are open for incoming TCP connection establishments.

Q 005: No connection can be established to the freeView IP 800.

A 005: Check whether the network connection is working (ping the IP address of device). If not, check the network hardware and check if the device is powered on. Check whether the IP address of the device and all other IP related settings are correct. Check that there isn't an IP conflict on the network (multiple devices using the same IP address). Verify that the entire IP infrastructure of your LAN, like routers etc., are correctly configured.

Q 006: Special key combinations, e.g. <Alt>+<F2>, <Alt>+<F3> are intercepted by the console system and not transmitted to the host.

A 006: A 'Hot-key' needs to be defined for special key combinations. See Section 5.10.1 for more

details.

Q 007: The web interface of the device looks abnormal.

A 007: Ensure the web browser cache settings are correct. Particularly, check that the cache settings are not set to "Never check for newer pages". Otherwise, the device interface may be loaded from the browser cache and not from the device.

Q 008: Windows XP doesn't awake from standby mode.

A 008: This is likely a Windows XP problem. Try not to move the mouse when XP goes into standby mode.

Q 009: Can't upload the signed certificate in MacOS X.

A 009: If an 'internal error' occurs while uploading the signed certificate, either change the extension of the file to .txt or add a file helper using the Internet Explorer preferences for this type of file. Make sure that the encoding is plain text and the checkbox 'use for outgoing' is checked. If this does not work, try using a Mozilla based browser.

Q 010: Every time I open a dialog box with some buttons, the mouse pointers are not synchronous anymore

A 010: Ensure that the feature "Automatically move mouse pointer to the default button of dialog boxes" is disabled on the host system.

Q 011: The computer boots up fine, but the keyboard doesn't work

A 011: Make sure the keyboard works when directly plugged into the computer. Don't press any keys on the keyboard while the selected computer is booting up. Otherwise, it might cause a keyboard error. Try a different keyboard, but use only a 101, 102 or 104-key keyboard.

Q 012: The power switch is off, but the switch is still on or power adapter is unplugged from the switch, but the switch is still on.

A 012: The freeView IP 800 draws the power source from the power adapter and the connected PC's PS/2 port. On some PC's the PS/2 port can supply enough power for the switch, but some PC's PS/2 port (like laptop, notebook computer…etc.) cannot supply enough power for the switch. For more reliable performance, please do not set the power switch to off state or remove the power adapter from the switch.

7.1 Certificates

FCC

This equipment has been tested and found to comply with Part 15 of the FCC Rules.   Operation is subject to the following two conditions:

(1) This device may not cause harmful interference

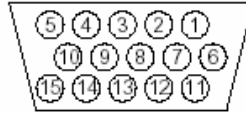(2) This device must accept any interference received. Including interference that may cause undesired operation.

CE – Certificate

This equipment is in compliance with the requirements of the following regulations: EN 55 022: CLASS B
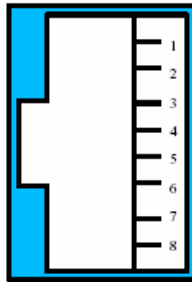
A. Pin Assignments

A.1 VGA HD-15

Pin	Assignment	Pin	Assignment
1	Red	9	5 V
2	Green	10	GND sync
3	Blue	11	Not connected
4	Not connected	12	SDA, DDC, ...
5	GND	13	HSYNC
6	GND red	14	VSYNC
7	GND green	15	DATA_CLOCK
8	GND blue		

A.2 RJ 45 Connector Ethernet

Pin	Assignment	Pin	Assignment
1	TX +	5	Not connected
2	TX -	6	RX -
3	RX +	7	Not connected
4	Not connected	8	Not connected

A.3 RJ 45 Connector ISDN

Same as above.

A.4 Serial SUB-D 9 Connector 1

Pin	Assignment	Pin	Assignment
1	DCD	6	DSR
2	RX	7	RTS
3	TX	8	CTS
4	DTR	9	RI
5	GND		

A.5 KVM 15 pin connector

Pin	Assignment	Pin	Assignment
1	VGA Red	9	MS Data
2	VGA Green	10	KBD VCC
3	VGA Blue	11	MS Clock
4	KBD Data	12	SDA, DCC, ...
5	KBD Clock	13	HSYNC
6	GND	14	VSYNC
7	GND	15	DATA_CLOCK
8	GND		

B. Key Codes

Table B-1 shows the key codes used to defines keystrokes or hotkeys for several functions. Note that these key codes do not represent necessarily key characters that are used on international keyboards. The names are based on a standard 104 key PC keyboard with an US English language mapping. The layout for this keyboard is shown in Figure B-1. However, most modifier keys and other alphanumeric keys used for hotkey purposes in application programs are in the same position as a US English keyboard, no matter what language mapping is used. Some of the keys have aliases which means they can have 2 different key codes (separated by a comma in the table).

Figure B-1: English (US) Keyboard Layout

Keys and Aliases		
0 – 9	SPACE	PAGE DOWN
A - Z	ALTGR	UP
~, TILDE	ESCAPE, ESC	LEFT
-, MINUS	F1	DOWN
=, EQUALS	F2	RIGHT
;	F3	NUM LOCK
,	F4	NUMPAD0
<, LESS	F5	NUMPAD1
,	F6	NUMPAD2
.	F7	NUMPAD3
/, SLASH	F8	NUMPAD4
BACK SPACE	F9	NUMPAD5
TAB	F10	NUMPAD6
[	F11	NUMPAD7
]	F12	NUMPAD8
ENTER	PRINTSCREEN	NUMPAD9
CAPS LOCK	SCROLL LOCK	NUMPADPLUS,NUMPAD PLUS
\, BACK SLASH	BREAK	NUMPAD/
LSHIFT, SHIFT	INSERT	NUMPADMUL, NUMPAD MUL
RCTRL	HOME	NUMPADMINUS, NUMPAD MINUS
RSHIFT	PAGE UP	NUMPADENTER
LCTRL, CTRL	DELETE	WINDOWS
LALT, ALT	END	MENU

Table B-1: Key Names

C. Video Modes

Table C-1 lists the video modes supported by the freeView IP 800. Do not use custom video settings besides that are not listed in the following table. Otherwise the freeView IP 800 may not be able to detect them.

Resolution (x, y)	Refresh Rates (Hz)
640 x 350	70, 85
640 x 400	56, 70, 85
640 x 480	60, 67, 72, 75, 85, 90, 100, 120
720 x 400	70, 85
800 x 600	56, 60, 70, 72, 75, 85, 90, 100
832 x 624	75
1024 x 768	60, 70, 72, 75, 85, 90, 100
1152 x 864	75
1152 x 870	75
1152 x 900	66
1280 x 960	60
1280 x 1024	60, 75

Table C-1: Supported Video Modes

D. Rack Mount Kit Installation Diagram

Figure D-1: Rack Mount Installation Diagram